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SYMPOSIUM ON HYPERTENSION

THE APPLICATION OF FUNDAMENTAL KNOWLEDGE TO THE CLINICAL PROBLEM OF HYPERTENSION*

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The title of this paper was chosen for two reasons: First, to enable me to present to you those fundamental facts which will orient you to the problems of hypertension. And second, to permit me to emphasize the necessity for fundamental research in the solution of the great number of problems in medicine which remain unsolved. The older methods of clinical medicine have been largely descriptive. They have accumulated a vast amount of factual information which has enabled us to recognize and classify diseases and disease syndromes. In many instances in the past, however, and in more instances in the future, the curtain of ignorance and misunderstanding will be rolled back only by the application of the fundamental disciplines of the medical sciences to the problem of clinical medicine. I usually object to the use of the term "Medical Sciences" to distinguish physiology, chemistry, bacteriology, pathology, etc. from clinical medicine. The term is often used in a condescending manner. Clinical medicine can and should be as scientific as the other disciplines. Whatever there is of solid worth in clinical medicine is based upon these fundamental sciences.

Further, I hope I am not presumptuous in emphasizing to this audience the great importance of both animal and clinical investigations as essential approaches to the solution of clinical problems. The conditions under which these types of investigation must go on are exacting, time-consuming and costly. Physicians may be of inestimable value in the education of the public and the loosening of the strings on the money bags controlled by both private and public sources of funds.

I am sure that it is accurate to state that many of the unsolved problems of medicine would have been solved by now if society were willing to spend on these problems the amount that they spend on research in steel, plastics or petroleum. While it is the hard-headed business man who realizes the importance of research in industry and directs funds into these channels, it is the public that pays the bills. The public must therefore be educated to spend more money on medical research. The alternative is to do it anyway under the direction of some bureau in Washington.

All this is by way of leading up to calling your attention to the recently established "The American Foundation for High Blood Pressure." It is the purpose of this organization to foster, encourage and support research in the field of vascular diseases, and to solicit and dispense funds in further support of these purposes. In the not too distant future, the purposes of the organiza-

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tion will be called to your attention in some way. May I urge your support of this organization in every way that you can.

The magnitude of the problem is shown by the figures in Table I which are taken from the reports of the U. S. Bureau of the Census. If one totals the number of deaths which are reported to be due to:

1. Intracranial lesions of vascular origin,
2. Diseases of the coronary arteries and angina pectoris,
3. Diseases of heart (other forms),
4. Nephritis,
5. High blood pressure,

one obtains a fair idea of the number of deaths which are due to or are contributed to by hypertension. Incidentally one also learns the necessity for emphasizing to the practicing physician that he is reporting the cause of many deaths erroneously. The vast majority of the deaths in the five categories above are most likely due to essential hypertension and should be so reported instead of reporting them as deaths due to disease of the heart, the brain or the kidney. For the five years indicated in the report of the U. S. Bureau of the Census, there is an average of only 1,662 deaths per year attributed to high blood pressure. I feel sure that there are close to that number who die annually in New Orleans alone as a result of this disease.

With this more accurate evaluation of the causes of death, one finds that approximately one-third of all deaths in the U. S. are due wholly or in part to essential hypertension. This disease also kills or contributes to the death of seven to eight times as many people as all forms of tuberculosis; more than fifteen times as many deaths as are due to acute and chronic rheumatic heart disease; more than twenty-five times more than are caused by syphilis; more than four hundred times the number who died of poliomyelitis; approximately two and one-half times the number due to cancer and about five times the number due to pneumonia and influenza combined. If the above facts are kept in mind, and the amount of money now being spent on the study of some of the diseases mentioned be compared, it will be obvious that the availability of much larger sums of money for research in vascular diseases is long over due.

In spite of the importance of essential hypertension as a cause of sickness and death, and in spite of great effort which has been devoted to the subject in recent years as a result of the work of Goldblatt the etiology of this abnormality remains unknown. Attempts to define the etiology of essential hypertension have been directed principally from the following viewpoints: (a) the kidney: as a source of nervous reflexes and other mechanisms, (b) the vasomotor apparatus, (c) humoral mechanism—arising in the kidney or other organs, (d) the kidney as a source of a substance which prevents the development of hypertension, and (e) endocrines.

A. THE KIDNEY AS THE CAUSE OF ESSENTIAL HYPERTENSION

Richard Bright[1] first showed that renal disease may produce hypertension. Bright's ideas regarding the relation of diseases of the kidney to high blood pressure were deduced from his observation of the high degree of correlation between renal disease and cardiac hypertrophy in the absence of intrinsic cardiac disease. His clinical and pathological observations founded the school which believes in the etiological relationship between renal disease and hypertension. This concept has been contributed to by other important workers in the field of renal diseases (Jores,[2] Volhard and Fahr[3]). The validity of the hypothesis of the renal origin of hypertension may have been an impetus to Goldblatt (1934,[4a] 1937[4b]) whose work showed so conclusively that the kidney may be the origin of pathological physiological processes which cause hypertension. Goldblatt's results have been confirmed and extended. These experiments have further directed attention to abnormalities of the kidney as a cause of hypertension. The original studies of Goldblatt (1934)[4a] and co-workers focused attention on the kidney as the organ which may give rise to hypertension under certain conditions. It remained for Goldblatt and others, particularly Houssay and Braun-

TABLE 1—CAUSES OF DEATH IN THE UNITED STATES

	1940	1941	1942	1943	1944		Average
Total death U. S. all causes	1,417,269	1,397,642	1,385,187	1,459,544	1,411,338		1,414,196
Intracranial lesions of vascular origin	119,853	118,584	120,652	127,300	124,250		122,128
Diseases of coronary arteries and angina pectoris	101,463	107,166	113,636	120,725	124,493		113,497
Diseases of heart (other forms)	256,298	252,650	255,983	278,470	268,030		131,143
Nephritis	107,351	99,954	96,907	99,267	91,687		49,517
High blood pressure	1,374		1,691	1,829	1,753		1,662
						TOTAL	417,847
Acute rheumatic fever	1,725	1,640	1,527	1,501	1,471		1,573
Chronic rheumatic diseases of heart	27,430	26,325	25,296	27,196	25,539		26,357
Tuberculosis (all forms)	59,428	59,251	57,690	57,005	54,731		57,621
Syphilis	19,006	17,728	16,345	16,263	14,916		16,852
Poliomyelitis (polio-encephalitis)	1,026	807	561	1,151	1,361		981
Cancer (all forms and sites)	158,335	159,926	163,400	166,848	171,171		163,936
Pneumonia (all forms) and influenza	72,525	84,982	74,532	90,115	81,804		80,792
						TOTAL	348,112

Menendez,[5] to elucidate the mechanism by which renal ischemia produces hypertension.

The role played by the nervous system in general and particularly by the nerve supply of the kidneys in experimental hypertension due to renal ischemia has been thoroughly investigated. Goldblatt, Gross, and Hanzal[6] were unable to lower the blood pressure of dogs, made hypertensive by renal ischemia, by resection of the splanchnic nerves; nor were they able to prevent it by splanchnic resection prior to the production of renal ischemia. Goldblatt and Wartman[7] found that section of anterior spinal roots from the sixth thoracic to the second lumbar inclusive did not prevent or reduce hypertension produced in dogs by partial constriction of main renal arteries. Page[8] (1935) and Collins[9] observed no change following section of the renal nerves in the blood pressure of experimental hypertension caused by renal ischemia in dogs. Even total thoracic and abdominal sympathectomy with cardiac denervation failed to prevent the development of or to lower the elevated blood pressures produced by renal ischemia (Freeman and Page[10]), Blalock and Levy[11] and Glenn, Child and Heuer[12] showed that the nerve supply of the kidney was not essential to the development of hypertension caused by renal ischemia by producing hypertension in dogs with ischemia of a transplanted kidney. These results have been adequately confirmed and it appears that the nerve supply of the kidney and the functional integrity of the sympathetic nervous system are not essential to the production or maintenance of hypertension due to renal ischemia. The results of Dock and Rytand[13] are not in agreement with this, however. They found the brain and cord essential to the maintenance of experimental renal hypertension in rats. They concluded that the pressor substance present in the plasma of rats with renal hypertension has no peripheral vasoconstrictor action, but acts through the vasomotor center. Pithing the cord may be criticized on the grounds that this results in such a poor physiological preparation that results with such a preparation would not be reliable. They showed, however, that epinephrine and pituitrin, known to act in the periphery, continued to produce transient rises in pressure in their hypertensive rats after pressures were reduced by pithing.

Goldblatt (1937)[4b] stated further that failure of surgery on the sympathetic nervous system to alter or prevent the development of hypertension in the dog with renal ischemia tends to minimize the role of the vasomotor apparatus of all parts of the body except the kidney so far as the cause of hypertension is concerned. If this be true, the question should be raised concerning the mechanism by which the kidney initiates the elevation of blood pressure. By implication, Goldblatt apparently believes that vasomotor impulses to the kidney are important in the genesis of hypertension. If this be so, what causes the abnormal vasomotor function to the kidney? Goldblatt (1937) stated also that failure of various surgical procedures on the nervous system to lower the blood pressure in experimental hypertension does not support the operations performed on human beings with hypertension; but it does not necessarily disprove, however, the reports of beneficial effects obtained by these procedures in some cases of human hypertension. He emphasized that sympathectomy can not influence the silver clamp on the renal artery which has caused the ischemic kidney to produce a humoral pressor substance. He also emphasized, however, the possibility that constricted renal arterioles may produce renal ischemia, and thereby, a pressor substance in the kidney; and that this arteriolar constriction might be relaxed by interruption of vasomotor impulses to the kidney with resulting correction of renal ischemia producing the hypothetical pressor substance. In this regard the work of Weeks et al[14] should be mentioned. They found that unilateral splenorenopexy in dogs caused elevated blood pressures produced by renal ischemia to return to normal. They attributed this effect to the correction of renal ischemia by a better collateral blood supply around

the tubules. They found, however, that omentorenopexy produced only a temporary fall in dogs with hypertension due to renal ischemia. Goldberg, Rodbard and Katz[15] reported that increasing the collateral circulation to the kidney by decapsulation and transplantation of the kidney to a muscle bed led to a temporary fall in the blood pressure in dogs with hypertension due to renal ischemia. When a normal dog had this performed beforehand, it did not interfere with the development of hypertension by subsequent partial occlusion of the renal artery. Katz et al explained the failure of this procedure to lower the blood pressure to probable compression of the kidney by scar tissue. This would not appear to be the case inasmuch as the blood pressure returned to previous levels within such a few days after operation. Undoubtedly scar tissue resulted from the splenorenopexy reported by Weeks et al but the blood pressure fell to normal levels. Regardless of the mechanism involved, Katz stated that operations designed to increase the collateral circulation to the kidney are unjustified as a means of treatment of hypertension of any sort, even the so-called "renal" hypertension.

Page and Heuer (1935)[16] found the arterial blood pressure unchanged by denervation of the kidneys in one case of essential hypertension. They concluded that this showed that nervous impulses originating in the kidneys did not share in the maintenance or genesis of hypertension. If this be true, it seems equally true that nerve impulses coming to the kidney must not have shared in the genesis of the hypertension unless it is assumed that too much organic damage had already been done by the time denervation was done. This appears unlikely because this patient's renal function was normal before denervation, as indicated by the urea clearance and concentrating power of the kidneys.

Hypertension may also be produced in man by renal ischemia (Leiter,[17a] Freeman[17b] and Hartley, Leadbetter and Burkland,[17c] Boyd and Lewis,[17d] Oppenheimer, Klemperer, and Moschkowitz,[17e] Nesbit and Ratliff,[17f] Blatt and Page,[17g] Barker and Walters,[17h] Bartels and Leadbetter,[17i] Longcope,[17j] and Butler[17k]). This is evidenced by the association of hypertension with lesions which partially obstruct the renal artery or intrarenal circulation and by the disappearance of hypertension following the removal of the ischemic kidney in some instances. A humoral mechanism of renal origin is accepted as the probable cause of hypertension in acute and chronic nephritis, chronic pyelonephritis, polycystic kidneys, renal amyloidosis, as well as in other less commonly encountered renal abnormalities such as tumor masses which partially obstruct the renal artery (Fishberg).[18]

The clinical and experimental work referred to appears to have established that renal vascular disease or abnormality may produce hypertension. Of this conclusion, there should be no valid doubt. This does not prove, however, that essential hypertension is produced in the same manner.

B. VASOMOTOR ASPECTS OF ESSENTIAL HYPERTENSION

Many earlier concepts of this etiology of essential hypertension have been based on this. While it is an obvious possibility, it has never been proved. The most that may be correctly said for it is that the cause of elevated blood pressure is compatible with vasoconstriction of vasomotor origin. Contributions to the possibility of a vasomotor etiology of essential hypertension have been made from diverse directions. From examination of pathological tissues, Gull and Sutton[19] concluded that the diffuse vascular disease found in patients with hypertension is a primary pathological entity. Whether they were correct or not, their conclusions first stressed the non-renal origin of hypertension. Allbutt[20] concluded that high blood pressure was primarily due to widespread vasoconstriction and that organic changes in smaller vessels were due to persistent hypertension, from his observations that organic arteriolar disease was not extensive enough to account for continued hypertension in some patients. The question of the cause of the vasoconstriction was not answered. Allbutt did not believe that the kidneys played a significant

role in the production of essential hypertension.

The failure of investigators to find renal disease in a small percentage of patients with hypertension has supported contentions that essential hypertension is primarily a generalized vascular disease and that organic renal pathology is secondary to the vascular disease. These observations apparently indicate that hypertension may exist without a persistent anatomical explanation for renal ischemia. If renal ischemia exists in these cases, it must obviously result from functional constriction of the renal blood supply. If this be the case, what produces the physiological constriction? If it is initiated by spasm, the possible role of the sympathetic nervous system is an obvious, though not a proved, one.

There is difference of opinion regarding the frequency with which one meets with hypertension which is not associated with significant renal pathology. Herxheimer and Schulz[21] said that renal arteriolosclerosis is found in 97 per cent of cases with hypertension. Bell and Clawson[22] stated that 90 per cent of patients with hypertension with cardiac hypertrophy have renal arteriolosclerosis. This appears to be a significant fact. If only 90 per cent of hypertensive patients who have had the disease long enough to produce cardiac hypertrophy have renal arteriolosclerosis, it seems probable that many more than 10 per cent of the cases have early hypertension without renal vascular disease. In this connection, Kimmelstiel and Wilson[23] stated that it must be borne in mind that less than 50 per cent of cases of essential hypertension show a completely diffuse arteriolosclerosis if mechanical obstruction to the circulation through the kidney is to be considered as a contributory factor to the hypertension. Jaffe[24] reported an increase in the diameter of the afferent glomerular arteriole in the early phases of hypertension. Fishberg[18] said that an intact kidney in essential hypertension is uncommon.

While the finding of hypertension unassociated with demonstrable renal pathology appears to be generally accepted, the most that one can conclude from it is that hypertension may be due to a non-renal cause. Any tendency to assume that this non-renal cause is therefore vasomotor in type is not justified and certainly not proved. The existence of essential hypertension without renal pathology does admit of the possibility that it might be due to vasomotor causes, however.

There are conflicting conclusions concerning the vasomotor apparatus in the production of essential hypertension. Older work emphasized the etiologic role of the vasomotor function in hypertension while much of the newer work is in disagreement with vasomotor etiology. Weiss and Ellis[25] showed that the average resistance of the arteriolar system in patients with hypertension was twice that of normal subjects. The blood volume and cardiac output per minute were normal. While the demonstrated vasoconstriction is possibly of vasomotor origin, there is no proof that such exists. Von Monakow[26] reported that vasomotor centers are hyperirritable in hypertension. Hines and Brown[27] obtained results with their "Cold Stimulation Test" that led them to conclude that hypertension is due to vasomotor irritability. They reported that 98 per cent of subjects with essential hypertension exhibited excessive reactions to cold. Particularly interesting, from the standpoint of the present study, is their finding that general anesthesia completely obliterated the response, and spinal anesthesia, with sensory anesthesia to the nipple line or even the umbilicus, essentially prevented any vasomotor response to the application of cold. These results emphasize the possible importance of the central nervous system as a cause or sustaining mechanism in essential hypertension. Raab[28] found that patients with essential hypertension responded to inhalation of carbon dioxide with rises of blood pressure several times greater than normal subjects. Normal responses were obtained in patients with hypertension due to nephritis. Mueller and Brown's[29] observations of the extreme fluctuations of blood

pressure during waking and sleeping supported the hypothesis of the vasomotor etiology of essential hypertension. Miller and Bruger[30] confirmed the work of both Hines and Brown and Raab by finding that 76 per cent of patients with essential hypertension gave excessive responses to the coldpressor test, while chronic nephritis with hypertension responded similarly to normal subjects. Their results were confirmed by Alam and Smirk.[31] The difference in the reactions of essential and nephritic hypertensives to various tests by Raab, Miller and Bruger, and Alam and Smirk supports the possible difference in etiology of the two conditions. This is not agreed to by more recent workers, who favor a humoral mechanism for all types of hypertension (Prinzmetal and Wilson).[32]

All published work does not agree that there is a difference in etiology of the two types of hypertension ("renal" and "essential"). Pickering[33] concluded that hypertonus of blood vessels in essential and renal hypertension was not due to a nervous mechanism. He speculated on the possibility of a local excess of pressor or lack of depressor substances in the vessels or tissues surrounding the vessels. Prinzmetal and Wilson[32] stated that hypertonus of blood vessels in all forms of hypertension studied was independent of vasomotor control. The conclusions of Prinzmetal and Wilson in coarctation of the aorta do not agree with those of Pickering. The former interpreted their results in coarctation of the aorta to indicate that the hypertension was of vasomotor origin. Pickering speculated that there was a congenital lack of growth of vessels as the cause of hypertension in coarctation of the aorta. The results and interpretations of Pickering and of Prinzmetal and Wilson are in agreement on essential and nephritic hypertension, and in complete disagreement regarding coarctation of the aorta. Are their methods as reliable as they believe?

The relation of vasomotor function to the etiology of essential hypertension has been studied to advantage by various surgical attacks on the sympathetic nervous systems of hypertensive patients in addition to those to which reference has been made on animals made hypertensive by renal ischemia. Adson and Brown,[34] Page and Heuer[35] (1935, 1937), Freyberg and Peet,[36] and Craig and Brown[37] have employed surgery on the sympathetic nervous system in the treatment of hypertension. All have claimed some success. Goldblatt (1937)[4b] stated that surgical procedures on the sympathetic nervous system which result in a lowering of blood pressure have only one thing in common—a denervation of the kidneys. He theorized that renal denervation may result in a better blood supply to the kidneys, the resulting decrease in ischemia possibly causing decreased production of renal pressor substance by ischemia kidneys. By the same right to theorize, one may argue that the loss of sympathetic impulses to the kidneys is not likely to result in a "corrective" amount of vasodilation of the renal arterioles unless such impulses initially caused the excessive vasoconstriction of the renal arterioles. Pickering[33] stated that the significance of the falls in blood pressure following section of splanchnic nerves and removal of lumbar sympathetic chains "is in doubt until we know the effects of similar operations in subjects with normal blood pressures." The effects of spinal anesthesia on normal blood pressures, which we have reported, is the nearest to this of which we are aware.

It is theoretically conceivable that essential hypertension may be initiated by excessive vasomotor impulses and the persistently elevated pressure results in anatomical change in the renal arterioles that causes ischemia which produces a pressor substance in the kidney. Renal ischemia as the cause of experimental hypertension in animals and one which may operate in human beings has been discussed.

The literature is conflicting concerning the role played by the vasomotor function in the production of essential hypertension. While some abnormality of the vasomotor function is an attractive possibility, and the literature cited above is partially in con-

formity with this possibility, no conclusive proof is available that this is the cause of essential hypertension.

C. HUMORAL MECHANISM FOR PRODUCTION OF HYPERTENSION

Certain abnormalities of the adrenal medulla and the adrenal cortex are known to be associated with a hypertensive state in patients. Surgical removal of these abnormalities usually causes the hypertension to return to normal levels. It is not believed, however, that these conditions are the cause of "essential hypertension" (Fishberg).

The work of Goldblatt et al (1934),[4a] confirmed and extended by many, has directed attention to the humoral mechanism involved in the production of experimental hypertension in animals by renal ischemia. Kohlstaedt, Helmer and Page (1938,[38] 1940[39]), and Plentl[40] and Page have made significant contributions to the problem of specific humoral substance which may be involved with work on "angiotonin." Goldblatt (1937)[4b] has also suggested, on the basis of experimental evidence, that the adrenal cortex and pituitary may play a part in the development of experimental hypertension produced by renal ischemia. This has been confirmed by Blalock and Levy.[11] This effect may be due to the general systemic requirements of these substances for health rather than to any specific relationship. Although newer experimental evidence supports a humoral mechanism as a possible cause of hypertension, and the clinical evidence previously mentioned supports the belief that hypertension due to renal ischemia does occur in human beings, the literature is confusing regarding attempts to isolate a pressor substance from the blood or tissues of patients with hypertension.

Much effort has been given to study of the humoral substance which is probably the cause of experimental hypertension due to renal ischemia and which may possibly be the cause of essential hypertension. Kohlstaedt, Helmer and Page (1938,[38] 1940[39]), and Plentl and Page[40] reported that the substance produced by the ischemic kidney in experimental hypertension and probably by the patient with essential hypertension is renin which is activated by a globulin fraction of blood plasma, called "renin-activator," to form "angiotonin." Tigerstedt[41] discovered renin in the normal kidney many years ago. Page and his collaborators have crystallized angiotonin. They have also studied a purified renin and renin activator and concluded that the activation is enzymatic (Plentl and Page). Contrary to an earlier publication, they concluded recently (1943) that renin is the enzyme and "renin activator" is the substrate.

The literature is conflicting regarding pressor compounds in the blood of hypertensive patients or in the blood of animals made hypertensive by renal ischemia. Danzer, Brody and Miles[42] reported that the blood of patients with hypertension contained a pressor substance not found in rabbit's blood or in the blood of patients with normal blood pressure. Curtis, Mancrieff, and Wright[43] duplicated the work of Danzer et al but found no pressor substance in the blood of patients with hypertension. Both investigations may be criticized because blood of human beings was injected into an animal of another species, the cat. Bohn[44] claimed that he had demonstrated a pressor substance in an alcoholic, protein-free extract of citrated blood from "pale" hypertensives (nephritics), but that similar extracts of blood of both normal individuals and "red" hypertensives (essential hypertension) produced a fall in blood pressure. He, too, injected extracts of human blood into an animal of a heterologous species. De Wesselow and Griffiths[45] were unable to confirm Bohn's results. They could adduce no evidence of a pressor substance in the blood of patients with essential hypertension. Ultrafiltrates from plasma showed no effect with the exception of a slight pressor effect produced by an ultrafiltrate of blood from a patient with chronic glomerulo-nephritis with slight renal failure. Aitken and Wilson[46] were also unable to confirm the claim of Bohn that bloods of "pale" hypertensive patients contained a pressor substance. Page (1935)[47] reported

that blood and cerebrospinal fluids of normal individuals and ascitic fluids contained a pressor substance. He could not demonstrate any increase of this pressor substance in the blood or cerebrospinal fluids of patients having hypertension. Interestingly, he observed that the medulla and spinal cord were essential for the production of this pressor effect. Fasciolo, Houssay, and Taquini[48] stated that blood from the renal vein of a dog's ischemic kidney contains more pressor substance than blood which had passed through a dog's normal kidney. They used a perfusion technic on the South American toad. Using frogs, bullfrogs, and toads from the southern part of the United States of America, Mason and Rozzell[49] were unable to confirm the results of Houssay and co-workers. The use of such widely different species as the dog and the frog is again open to criticism. Page (1940),[50] using the perfused rabbit's ear, stated that "since vasoconstriction occurs under the same experimental conditions with plasma from both hypertensive patients and dogs, this is considered cogent evidence in favor of the view that the chemical mediator of both is similar and is possibly angiotonin."

While the methods used are perhaps open to question on the grounds mentioned, the results of injecting blood, plasma, or extracts of blood and of plasma from hypertensive patients into other animals have failed to demonstrate conclusively the presence of a pressor substance in the blood hypertensive patients.

The possible production of a pressor substance by hypertensive patients and animals has been studied with extracts of kidneys. Prinzmetal and Friedman[51] reported considerable variation in the results obtained from injecting extracts of kidneys from patients with high blood pressures. Although there was overlapping, the average rise of blood pressure from extracts of the former was 12 millimeter of mercury while the average rise from the latter group was 28 millimeters of mercury when identical amounts of the two different extracts were injected into dogs. They also studied extracts from the kidneys of dogs in which one kidney was made ischemic. The other kidney was not disturbed. In 11 of 14 dogs the extract from the ischemic kidney contained a greater amount of pressor substance than an extract from the normal kidney. Harrison, Blalock and Mason[52] obtained similar results with dogs made hypertensive by both renal ischemia and ureteral ligation. Landis[53] found no evidence that extracts of kidneys from patients with benign hypertension or chronic glomerulonephritis contained any greater amount of pressor substance than did extracts of normal kidneys. Extracts from kidneys of patients with malignant nephrosclerosis produced slightly greater pressor effects.

Published evidence indicates that ischemic kidneys of hypertensive dogs contain a greater amount of pressor substance than do normal kidneys of dogs. An excessive amount of pressor substance in the kidneys of hypertensive patients has not been demonstrated. This may be due to post mortem destruction before or during the preparation of the extract. The evidence concerning a pressor substance in the blood of hypertensive dogs is still too conflicting to permit of any conclusions.

An important contribution is the report of Pickering who observed no effects on the blood pressures of anemic patients as a result of transfusing them with as much as 600 cc. of blood from hypertensive patients. Pickering raises an obvious criticism that a pressor substance may be present in the blood but that it may be quickly destroyed or diluted with resulting lack of pressor effect. He believed, however, that the methods he used controlling the lapsed time properly answer this criticism. He concluded that his results are opposed to the idea that essential hypertension is due to an excess of pressor substance in the circulating blood.

Convincing evidence has been adduced that hypertension produced by renal ischemia is due to a circulating pressor substance formed in the ischemic kidney. There is no convincing proof, however, that es-

sential hypertension is due to or associated with the circulation of a pressor substance in the blood of such patients. In summary, it has been stated "the results of various experiments indicate that this type of experimental hypertension (renal ischemia) is due primarily to a humoral and not to a nervous mechanism initiated by the ischemia of the kidneys" (Goldblatt, 1937). The literature is in complete agreement with this. It must be emphasized, as Goldblatt has done, that while this may also be the cause of essential hypertension; and, as Prinzmetal and Wilson contend, of all types of hypertension, the conclusion is valid only so far as the hypertension associated with proved renal ischemia is concerned.

Study of the effect of spinal anesthesia on the levels of blood pressures in patients with essential hypertension has produced data which do not support a humoral mechanism as the cause of essential hypertension.

D. THE KIDNEY AS A SOURCE OF ONE OR MORE SUBSTANCES WHICH PREVENT THE DEVELOPMENT OF ELEVATED BLOOD PRESSURE

Grollman[54] has been a chief contender for the idea that the reninhypertensin mechanism is not the cause of the elevation of blood pressure even in experimental animals with renal ischemia. He believes that renin is not produced by the normal or ischemic kidney but that it represents a product of tissue damage due to rough handling, or changes in extracts due to prolonged standing.

Grollman[55] is also responsible for the concept that elevation of blood pressure in experimental renal ischemia, as well as in hypertensive man, is due to the failure of the abnormal kidney to elaborate a substance (produced by the normal kidney) which prevents the development of hypertension. While this is an interesting point of view and one which deserves further confirmation and elucidation, there is little evidence as yet to support it.

E. ENDOCRINE CAUSES OF HYPERTENSION

Much work has been directed at determining the influence of the endocrine glands on the blood pressure. While there is an accepted etiological relationship of pheochromocytomas of the adrenal medulla and of tumors of the adrenal cortex in so-called Cushing's syndrome to the elevation of the blood pressure, there is no well defined evidence as yet that this gland is etiologically related to essential hypertension. There is suggestive evidence that the adrenal cortex may be necessary for the development of hypertension due to renal ischemia.

There is no sound evidence that the other glands of internal secretion are in any way related to the cause of experimental or essential hypertension in man.

APPLICATION OF NEWER KNOWLEDGE TO THE TREATMENT OF HYPERTENSION

It will be the purpose of this aspect of the paper to call attention to the procedures which have been found to be of definite value and to other methods of treatment which are currently in the spot light and from which success might be expected because of the rational basis of the method.

A. THERAPEUTIC METHODS WHICH DEPEND UPON THE RENAL ORIGIN OF HYPERTENSION

1. Unilateral renal disease. It appears definitely established that unilateral kidney disease may cause hypertension. This may be due to unilateral pyelonephritis, tuberculosis, hydronephrosis, nephroptosis, tumors (Wilm's) partial thrombosis of main renal artery, etc. Unfortunately too much enthusiasm for this originally resulted in the needless sacrifice of kidneys and in some cases precipitated a rapidly fatal end. The benefits of unilateral nephrectomy or nephropexy appear to be beyond doubt. Nevertheless, the number of cases which will be benefited is very small. It is essential that a suspected candidate for such treatment be subjected to rigorous urologic examination in order to avoid mistakes. Schroeder and Fish have proposed the following criteria for the selection of patients for unilateral nephrectomy for relief of hypertension.

a. Hypertension must be of recent origin (two years or less).

b. The renal lesion must be confined to one kidney and must have produced di-

minution in the function of this kidney.

c. Combined renal function of both kidneys (urine concentration and urea clearance tests) must be within normal limits.

d. Retinitis should be absent and changes in the retinal vessels minimal.

e. The arterial blood pressure must be persistently elevated.

It is reasonable to suspect the possibility of unilateral renal disease in all cases of hypertension. But it is essential that undue enthusiasm not result in useless surgical procedures.

2. Coarctation of the aorta—surgically relieved by anastomosis.

3. Attempts to influence the humoral mechanisms involved.

Munoz and collaborators[56] have pointed out the following possibilities:

1. Suppression, diminution or inactivation of renin.

2. Inhibition of reaction between renin and hypertensinogen.

3. Diminution of the amount of hypertensinogen.

4. Inhibition of the action, or destruction, of hypertensin by an increase in the amount of activity of hypertensinase, or some other agent capable of accomplishing this. Procedures 1 and 4 have received the most attention.

Extracts of kidney were used empirically in the treatment of hypertension long before persistent hypertension was produced in animals. The first attempts to apply this method of treatment to both experimental and clinical hypertension were made by Harrison and coworkers.[57] Their use was based upon the concept that the normal kidney produced a substance capable of destroying the pressor substance elaborated by the abnormal kidney.

Page et al.[58, 59, 60, 61] have used kidney extracts parenterally in both animals and man; and have tried to correlate its effects with the amount of hypertensinase in the extracts, which has been questioned by Schales.[62] Harrison, Grollman and Williams[57] have also shown that hypertensinase was not required for the antipressor effects of their renal extracts which they claimed to be effective in man and experimental animals given orally or intramuscularly.

Numerous investigators[63, 64, 62] have claimed that any anti-pressor effects observed with kidney extracts are due to non-specific local and systemic effects of various organic compounds in the extracts.

The failure of these methods to result in any further progress in the number of years since they were introduced at least emphasized the difficulties involved in this type of work; and probably indicates that this approach has little to offer in the future. We still do not have anything in a small bottle that is the answer to the problem of hypertension.

Inasmuch as renin is a protein it might be expected that its repeated injection would result in the production of an antibody. In significant studies Wakerlin[65-68] has demonstrated that the injection of renin from various heterologous species into the dog will prevent development of experimental hypertension, as well as lower elevated pressure in experimental animals.

In view of the fact anti-renin must be produced by injection of renin from another species, and its possible anaphylactic implications in man, this important possible approach to the problem in man has not gone forward.

The possibility of a deficiency of the heat stable fraction of vitamin B complex which Calder[69, 70] has proposed as a cause of hypertension needs extensive confirmation.

The claims for vitamin A in the treatment of hypertension have been successfully disputed. Grollman, however, believes that various fish liver oils contain a substance, enhanced by oxidation, which may be identical with the substance previously described by him[71] in renal extracts to be orally effective in hypertensive animals and man. This needs extensive confirmation, and as yet

has no application to the ordinary clinical management of hypertension. There is, as yet, no readily available source of this material.

Grollman[72] has again revived the use of the low sodium intake as a result of some of his experimental work. He emphasizes that the sodium must be less than 1.0 gram daily. This is difficult to achieve. The significance of his observations remains to be confirmed and explained. From some of our incomplete observations, it is doubtful that this has much to offer.

The benefits of a special rice diet recommended by Kempner[73] in the treatment of hypertension in man has not been confirmed.

B. METHODS OF TREATMENT BASED UPON THE NEUROGENIC CONCEPT OF THE ETIOLOGY OF HYPERTENSION

One of the undisputed facts concerning hypertension is that the elevated blood pressure is due to increase in the peripheral resistance in the circulatory bed at the arteriolar level. The evidence for both the humoral renal mechanisms and the neurogenic factors have already been referred to. Most of the evidence supporting the renal origin of hypertension has been from animal experimentation, although this occurs in certain cases of renal disease in man.

The evidence supporting the neurogenic cause of hypertension is both experimental and clinical in nature, and is both negative and positive. My coworkers[74] and I have failed to find any evidence of an increase in pressor substances in the blood of patients with essential hypertension. Specifically we have failed to find any increase in the blood of hypertension (angiotonin). Dexter and Haynes[75] have likewise failed to find an increase of renin in the blood of patients who have chronic hypertension; although they have found an increase of renin in the blood of patients with acute nephritis and eclampsia. Ogden[76] has adduced evidence to indicate that rats may develop hypertension which is of renal origin, but after a certain lapse of time appears to become neurogenic in character.

We have made extensive investigation of the effects of spinal anesthesia on the blood pressure of hypertensives and have found:

1. Marked falls in both systolic and diastolic pressures.
2. This fall occurs almost immediately.
3. In animals with renal hypertension the blood pressure does not fall for a matter of four to six hours after removal of the offending kidney.
4. During the spinal anesthetic induced fall of blood pressure in human hypertensives one may still readily cause rise in blood pressure by the intravenous injection of a number of pressor substances, including angiotonin (hypertensin).
5. There is no constant time relationship between falls in venous and arterial pressures induced by spinal anesthesia in human hypertensives.
6. The arterial pressure usually falls first—indicating that a decrease in cardiac output is probably not the cause of the decreased arterial pressure.
7. This is further supported by the fall in diastolic, as well as systolic pressures.

We believe that these and other data support the neurogenic etiology or neurogenic component of essential hypertension in man.

The neurogenic hypothesis is, of course, the rational basis for the use of the various types of sympathectomy now being employed. Of these, the Smithwick operation, which employs the supra-and subdiaphragmatic section of sympathetics is probably the best.

One needs to urge every precaution in the rigid selection of subjects for this operation. Age, reasonably normal renal function (concentration test, urea clearance and PSP excretion tests), satisfactory cardiac function (no failure), and evidence of adequate reversibility of the blood pressure, as shown by marked spontaneous falls in pressure, and marked falls under sodium amytal sedation, and spinal anesthesia, are all important fac-

tors in selecting the candidate for the operation. In spite of rigid selection of patients, the operation is not always successful in producing a satisfactory to excellent fall in arterial pressures will have a recurrence of their hypertension within a few months to few years. The cause for this needs further elucidation.

The neurogenic concept of the cause of hypertension is also the basis for the use of such sympathicolytic substances as the tetraethylammonium compounds in the selection of patients for sympathectomy. This phase of the subject is still in the investigative stage. There is nothing which is of immediate applicability to therapy in this field.

SUMMARY

In summary the cause of "essential hypertension" remains to be defined. At this time, the renal and neurogenic mechanisms appear to offer the most fruitful directions along which further work should be done. Goldblatt has been one of the strongest proponents of the renal origin of the disease. Yet he has recently said: "In the event that the renal origin of this form of human hypertension should become established, it would still be necessary to determine the cause of the arterial and arteriolar sclerosis which, when it affects the kidneys to a sufficient degree, initiates the humoral mechanism of the hypertension."

A rational and curative treatment of the disease will, no doubt await the definition of the cause. In spite of intensive efforts of many workers for the past 15 years, the answer is not available. Continued intensive efforts must go on to the eventual solution of one of the most serious diseases with which we are confronted.

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SURGICAL TREATMENT OF HYPERTENSION*

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NEW ORLEANS

The surgical treatment of hypertension is sympathectomy by which portions of the visceral vascular bed are denervated. At the introduction of the operative treatment a wide variety of results were obtained, but with improvement in surgical technic and the clarification of the selection of patients, the therapeutic results are now becoming uniform and effective.

MODE OF ACTION

Explanations of the mechanism whereby sympathectomy lowers the blood pressure are incomplete. Some attribute it to the relief of renal ischemia, but renal denervation in a small number of human hypertensives had no effect on the blood pressure. The normal autonomy of the renal circulation, by which the kidney maintains a nearly normal rate of blood flow despite arterial pressure changes, is ignored in the renal ischemia viewpoint. Vasodilatation provides a partial explanation. However, the reduction in blood pressure is prolonged, and in some cases progressive, after the postural effect disappears. Vasodilatation does not account for the marked regression in eye-ground changes following operation when there is no significant lowering in the blood pressure level. An additional undeveloped possibility is the effect of operation on the production of adrenalin by the adrenal cortex. Denervation of the adrenal glands in experimental animals reduces their adrenalin output; the work of Freeman, Smithwick and White indicates that sympathectomy heightens the sensitivity of the vascular musculature to adrenalin. Sufficient reduction in the supply could counterbalance the increased susceptibility.

THE OPERATION

The four surgical procedures devised vary chiefly in the extent of sympathetic denervation.

1. The subdiaphragmatic splanchnicectomy of Craig and Adson is the least extensive; it is being abandoned as incomplete.

2. Supradiaphragmatic splanchnicectomy has been carried out by Peet for the past thirteen years. He recently summarized the results of 1500 cases, the largest series by one surgeon using the same technic and with the same follow-up. Other observers have not duplicated the success of Peet. In general, the operation seems to be losing favor.

3. Transdiaphragmatic sympathectomy as performed by Smithwick is a combination of the technics of Adson and Peet. It effects complete denervation of the renal blood supply. Exposure is obtained by resection of the twelfth rib. Removal includes the greatest possible length of the splanchnic nerves and the thoraco-lumbar sympathetic trunk from T-10 to L-3 inclusive. The operation is done in two stages eight to ten days apart.

4. Total sympathectomy was first performed by Grimson in 1940. It is still considered experimental.

SELECTION OF PATIENTS

In general, the following are the criteria for operation: A patient below fifty-four years of age; a continuously elevated blood pressure, with a systolic pressure over 170

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and a diastolic pressure above 105; a non-protein nitrogen below 45 mgm. per 100 c.c.; a well compensated heart and a relatively normal cerebral function. Cardiac decompensation and recent evidence of coronary occlusion are contraindications to surgery. Gross enlargement of the heart increases the operative risk but is not in itself a contraindication.

Opinion is divided as to how much renal damage is significant. A rapidly falling urea clearance or concentrating ability constitutes an almost certain contraindication. On the other hand, if these are relatively stable over a six month period, even if the urea clearance is as low as 40 per cent of normal or the ability to concentrate is reduced to 1.018, renal damage is not a deciding factor for or against operation. Some of the best results have occurred in patients in whom pregnancy appeared to be the precipitating etiologic factor. Chronic glomerulo-nephritis is not amenable to operation. Laboratory tests, namely the sodium amytal test and the cold pressor test, alone are not sufficient for the selection of cases. Malignant hypertension, provided the cardiac and renal damage is not far advanced, is a definite indication for sympathectomy.

RESULTS OF OPERATION

Smithwick reports a mortality of 7.8 per cent in over 600 unselected patients. Most of the deaths occurred in a small group of patients, which obviously would be considered inoperable now. Poppen had one death of coronary thrombosis in 100 selected cases.

Blood pressure reduction in 2309 cases reported is as follows: Good 45 per cent, fair 35 per cent, unsatisfactory 25 per cent. Symptomatic relief has been striking. Headache, nervousness, irritability, insomnia, and palpitation have been greatly relieved, or eliminated in 80 per cent of the patients. The improvement has been persistent and is not necessarily dependent on a significant lowering of blood pressure.

Renal function has shown definite improvement in 40 per cent of cases. Half of the patients with marked cardiac enlargement underwent a significant reduction. Fundiscopic findings have regressed in 80 per cent. Nineteen per cent of Peet's patients with preoperative malignant hypertension are still living five to thirteen years after splanchnicectomy. A number of patients with severe hypertension have carried pregnancy to completion without incident subsequent to operation. In males, libido and potency are diminished in 23 per cent. Twenty-one per cent had no ejaculation postoperatively. All indications point towards an increase in life expectancy with a more comfortable existence, but many more years of careful follow-up are necessary to verify this.

COMMENT

The experience of the author, which is limited to 19 cases, coincides with the results reported. In addition, it was noted that most of the patients experience a period of mental depression which varies from six months to a year. A troublesome neuritis plagues most of them for four to six months.

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THE USE OF DRUGS IN THE TREATMENT OF HYPERTENSION

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There is no adequate drug therapy of hypertension. In the past a multitude of drugs have been proposed for their hypotensive effect, but these have largely been discarded as of no value. In recent years in accord with our changing concept of hypertension attempts at more specific therapy have been made with agents acting on a theoretical renal origin of the hypertension. None of these agents has so far been successful. Thus as it stands

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today one might summarize the present status of drugs in the management of hypertension by stating that, except for the symptomatic relief of sedatives and analgesics as adjuvants to psychotherapy (and perhaps thiocyanates), drugs have little place in the modern care of the hypertensive. While such a statement would summarize the more scientific attitude it would be far removed from the every day practice of medicine, where most of us are still using the older groups of drugs in the management of our patients.

NITRITES AND XANTHINES

Thus the nitrites whose action is evanescent and generally conceded to be of no value except in the anginal syndrome and coronary insufficiency, are still widely used in attempts to lower the blood pressure. Likewise, the xanthines, whose hypotensive qualities are nil, still enjoy wide popularity. The various salts of theobromine and theophylline, almost always in combination with phenobarbital, are commonly prescribed. That they might possibly be useful in cardiacs is felt by some; that they do not lower the blood pressure is admitted by all. Why then do they continue to enjoy such popularity? It must be because they are more or less harmless, agreeable to take, and because many of us feel that we must give "some medicine" to the patient. Further, it may be argued that it is a satisfactory but expensive way of giving phenobarbital to certain patients, who for one reason or another object to the barbiturates.

THIOCYANATES

Interest in the use of the thiocyanates revived greatly in the past ten years with the advent of methods of blood level control. That they are poisons and should be used only in certain selected cases under rigid blood level control should be well known. That they lower the blood pressure in roughly 50 per cent of the cases without any consistent relationship to the dosage used is agreed. That they relieve symptoms, mainly and notably troublesome headache, is generally conceded. Those who advocate their use advise strongly against exceeding blood levels of 6-12 mgs per cent, and recommend the lowest level that will relieve symptoms. Some feel that the thiocyanates are the only worthwhile drugs available in controlling symptomatic hypertension. On the other hand there are those who do not advise their use under any circumstances, considering them ineffective and dangerous even with blood level control. Their toxic manifestations are legion and include nausea, vomiting, muscular fatigue, dermatitis, goitre, thrombophlebitis, mental confusion, lethargy, delusions, hallucinations of sight and hearing, motor aphasia, delirium, convulsions, coma, and death. Seven deaths are reported as positively due to their use. It is questionable whether we will ever know just how many hypertensives have died from thiocyanate. It is probable that they are used more often uncontrolled than controlled. One wonders whether the interest aroused in them in the past ten years represents but a desperation measure, and that their use will disappear from medical practice in years to come. At the present time however, such a measure seems justified only when symptomatic control cannot be had by less noxious agents. As far as I have been able to determine their use has not appreciably prolonged life.

IODIDES

The iodides are likewise still widely used in the management of hypertension. Their use seems to be predicated on the old belief that they have some hypotensive value, and that they act as tissue resorptives, and are especially taken up by necrotic or degenerative tissue and aid in the dissolution of such tissue. While there is no scientific evidence to show that they have a beneficial effect in hypertension, there is likewise no evidence to show that they have a deleterious effect.

HORMONES

Estrogens, frequently in conjunction with thyroid extract, are useful in some patients in the menopausal age who exhibit emotional instability. They should

be tried on all such patients if the symptoms are not controlled by sedation and psychotherapy. It is the consensus of opinion that what beneficial effect they have on the hypertension is directly proportional to the extent to which they relieve the emotional instability. It has been shown that the term menopausal hypertension is a misnomer, and that it is merely essential hypertension accentuated by the menopause.

While the results with the use of testosterone in the male have been dubious, it is generally felt that testosterone is worth trying, particularly in cases presenting the picture of the male climacterium. Such cases however are not common.

The use of pitressin tannate in oil in selected cases of hypertension fulfilling certain diagnostic criteria has been reported. About 50 per cent of the cases so treated are said to have moderate reduction of blood pressure and alleviation of symptoms. Irradiation of the pituitary in the same type of cases gives about the same results.

VITAMIN A

Competent reports on the use of vitamin A indicate that in doses up to 400,000 units a day it is ineffective in reducing the blood pressure. It does however increase renal blood flow, filtration rate and maximal tubular excretory capacity in hypertensive patients. It is believed that there is some other substance present in fish liver oils that accounts for the renal changes observed. The Russians describe a "fragment" of vitamin A which they call "Cytral" that is supposed to lower the blood pressure and relieve symptoms in ten to fourteen days. Cytral is described as a yellow oily liquid obtained from the seeds of coriandrum, a plant of the umbrella family. Further confirmation of the merits and availability of this substance is needed.

MISCELLANEOUS SUBSTANCES

Next, there is a large group of substances proposed at one time or another for their supposed hypotensive qualities which either have been discarded as of no value or have not as yet been shown to be of real value. Among those which have been discarded as of no value are: Extract of garlic and parsley, extract of watermelon seed, extract of mistletoe, calcium salts with or without atropine, liver extract, pancreatic extract, foreign protein, benzyl benzoate, radium chloride, etc.

More recently certain thiourea compounds have been suggested but no extensive work has been done with them as yet. It is not likely that they will prove useful in uncomplicated essential hypertension, however.

Salsolin, a drug derived from a plant found in the Southern Siberian desert and reported by the Russians for its hypotensive qualities and ability to relieve symptoms, was referred to last year in the American literature but I know of no controlled reports of its usefulness.

Beneficial results from the use of prostigmin orally in doses ranging from 7.5 to 22.5 mgs., three times daily, have been reported from Germany. The use of this parasympathetic drug is based on the finding of an increase in serum cholinesterase in essential hypertension. This work has not been confirmed.

Rutin, the drug only recently publicized in the lay journals, is said to lower blood pressure in some hypertensives that show increased capillary fragility. According to one reporter, about 20 per cent of the hypertensives show increased fragility by the Gothlin Index. In those over the age of forty the drug is said to be useful in preventing vascular accidents; in those under the age of forty, in addition to correcting the increased fragility it is said to frequently return the blood pressure to normal. Again, I have not seen adequate confirmation of these claims. The drug, however, is apparently entirely non-toxic, and has been used in conjunction with thiocyanate therapy to correct or prevent the increase in capilliary fragility that sometimes occurs from the use of thiocyanate.

At the present time there are under

investigation various tetraethylammonium compounds whose hypotensive effect is said to be marked but transient, and whose action is on the autonomic ganglia. These drugs are being studied mainly in connection with peripheral vascular disease, and it would be out of order to do more than mention them here.

SO-CALLED SPECIFIC MEDICAL THERAPY

Finally, a few words about the so-called specific medical treatment of hypertension, wherein the substances used are directed at a theoretical renal origin of the hypertension. Such substances are renal extracts, tyrosinase, methylene blue, and the quinones. Each of these substances is directed at the neutralization, inactivation, or inhibition of renal pressor substances, either at their site of origin in the kidneys or while circulating in the blood stream. Suffice it to say that thus far reports from various research groups have shown them to be ineffective in human hypertension.

CONCLUSION

Thus it would appear that from the standpoint of drug therapy, we have little that is formidable to offer the patient with essential hypertension. The plan that has been effective and safe is the alternation of the use of various quieting agents such as phenobarbital, bromide, and chloral hydrate, along with psychotherapy and dietary restriction when indicated. Various analgesics are used as needed. Thiocyanate is recommended only exceptionally. Any such plan frequently depends for its success as much on the personality of the doctor as on the drugs used.

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DISCUSSIONS

Dr. Edgar Hull: I think the completeness with which these men have covered the subject is indicated by the fact that they have already asked and answered most of these questions which have been submitted.

One question is, what about the Kempner rice and fruit juice diet for hypertension? I think Dr. Gregory answered this during his paper. Do you have any further comment?

Dr. Raymond L. Gregory: I simply summarized the status of present knowledge by saying that, in general, there has been almost complete inability on the part of other people to confirm the beneficial effects of the rice diet which has been recommended by Kempner. You recall that the original basis for the use of this diet was the idea that the abnormal kidney elaborated, from ordinary dietary sources, a substance or substances which was the pressor substance responsible for the elevation of the blood pressure; and that perhaps some other food, in his instance he believed rice, did not contain precursors from which this pressor substance could be elaborated. That is the original basis for it and I might say the question yet remains to be adequately studied. Most of the observers who have tried it realize that most of the difficulty is to get the patient to stay on it any length of time. It is extremely undesirable, to say the least in that it is so unpalatable that the patients do not wish to persist in its use. I think we should emphasize that as yet no real value has been shown from this method of managing hypertension.

Dr. Hull: Another question is—Is salt restriction of any value in treatment of hypertension?

Dr. Gregory: I personally don't think it of any value whatsoever. If I may be permitted, rather than elaborate on that point, I would like to make another point in connection with hypertension. It is this: It is extremely difficult to run a good control on the effect of any substance, drug or otherwise, or any procedure to decrease elevated blood pressure. I am sure there is not an individual among you who has not seen many hypertensives whose disease is characterized by extreme fluctuations of blood pressure. It is not at all uncommon to find a patient with blood pressures for a day a week of 220, 230 or 240 with diastolic levels of 130 or 140. Then for no apparent reason that one can detect— perhaps slight decrease in activities— or perhaps not particularly related to these restricted activities—no changes in their regime at all—one finds blood pressures around 160 or 180. When you have that type of natural fluctuation of levels of blood pressure it is obviously difficult to appraise the value of any therapeutic method. I think most of the useless methods employed are the result of failure to consider seriously this important fact in dealing with the hypertensive patient. I am quite sure this is the case with the rice diet and low sodium intake as well.

Dr. Hull: The next question Dr. St. Martin answered, by implication if not directly. It is this—Is it reasonably safe to give thiocyanates without determining the blood level from time to time?

Dr. M. E. St. Martin: I think this question has been suitably answered. Personally, I am very much against the use of thiocyanates. If they are going to be used at all they certainly should have frequent blood level control; in the beginning —at least once a week and after an effective safe level has been established, at least once a month. That is the generally recommended method of doing it but I don't like them under any circumstances.

Dr. Hull: The next question, we will refer to Dr. O'Neil: Does the previous occurrence of congestive heart failure, myocardial infarction, or cerebral vascular accident necessarily contraindicate sympathectomy for hypertensive disease?

Dr. L. J. O'Neil: I would say, if the patient is young, if he is completely recovered, if compensated and if you thought he could stand the operation, then sympathectomy would be indicated. If over 50 years of age, no. All the writers and operators mentioned have exceptions to their rules. For example, Peet had one elderly patient who developed sudden blindness. Obviously such a patient with severe hypertension would not be considered a good risk. Operation was advised and restoration of sight resulted. It really boils down to the evaluation of the patient. The one who sees the patient daily is in a better position to say than all of these tests and if I did not clarify that in the talk I would like to bring it out now; the application of all these tests but not ony one test decides whether or not a patient is to be operated on.

Dr. Hull: The next question we will refer to Dr. Gregory. Is unilateral kidney disease of sufficient importance in the cause of hypertension to warrant a urologic survey, including at least an intravenous pyelogram, in the work-up of all cases?

Dr. Gregory: Here again, this question is hard to answer. Certainly it is impossible, I believe, whether warranted or not, for every hypertensive patient, to have a thorough urologic study from the standpoint of ruling out unilateral renal disease. The number of these people reaches such great proportions that the facilities available would not permit. In general, the answer to this question would depend upon a careful clinical evaluation, the importance in the history of symptoms of urologic nature such as previous pyuria, renal lesions which suggest those abnormalities

or suggest nephroptosis with elevation of pressure in the upright and not in the recumbent position which is emphasized by McCann and others. A good clinical history which would rule out any suspicion of renal disease is, I think, adequate evidence against the routine use of urologic studies in every patient with hypertension. If, in addition to the absence of suspicious evidence of current or previously active renal infections on the basis of good history and at least a careful urinalysis, there is a good or strong family history of hypertension, as one can usually obtain it in most of the people with so-called essential hypertension, I would say you would have enough evidence to obviate the necessity for urologic studies in the vast majority of cases with hypertension. That is the way I would and do approach the answer to this question.

Dr. Hull: The next several questions on the list have already been answered so we won't repeat. I do have one final question presented to me and known technically as a "stinker". It is this—Do you believe that *any* treatment really alters the course of hypertensive disease? I would like to have volunteers to answer that question.

Dr. Gregory: The reason I am willing to take a chance at this question is because behind it there are implications which are important in handling the patient with hypertension. I don't know that we have conclusive evidence that any type of medical treatment alters the course of hypertensive disease. We would have to define the term before answering that question. If you mean prolong the life of the patient; I think, by inference, we have to say that the individual who gets good results from sympathetic surgery does have a prolongation of life at least to the extent to which his blood pressure is reduced for a long period of time. That is the natural corollary I think we all accept, namely, carrying of elevated blood pressure for long periods of time is harmful. Many of these people have marked increase in comfort during the time they do live. I think that is important. Other than sympathectomy I am convinced in my own mind that it is unlikely that any form of therapy we indulge in really alters the course of hypertensive disease at the present time. Here is the much more important consideration behind this question to me. Although what I say I believe thoroughly, nonetheless we can't take a completely defeatist attitude toward it. Thousands of people with hypertension come to doctors' offices. If one takes this defeatist attitude, I think it does a great deal of harm. There are many things we can and must do in the management of hypertension. Not among the least is the acquisition of sufficient knowledge of the natural history of this disease to enable the physician to avoid doing harm. I believe a large proportion of patients I see with hypertension, are not ill by reason of hypertension but primarily ill as a result of the anxiety state which the knowledge of their disease, or undue restrictions have engendered in the patient. It is absolutely essential that we approach this thing reasonably and do everything we can to avoid having these people make their lives revolve around their blood pressure. It is just as well perhaps in the average case, when one has become convinced that hypertension is established to throw away your monometer. There are many attitudes which one can take toward management of hypertension which are, in a sense, types of psychotherapy in which I believe. We must not "brush them off" and develop a hopeless attitude that nothing can be done; and it is just a matter of time before death or serious complication will arise. We all know that the average case of hypertension exists 20-40 years before serious consequences arise.

Dr. A. A. Herold: I would like to ask one of the essayists a question—Do you consider daily physical rest of value to the hypertensive insofar as comfort and longevity are concerned?

Dr. St. Martin: It has been definitely shown that in the recumbent position the blood pressure is almost invariably lower. I feel that such a program of daily rest is a wise one, provided the patient is in a reasonable position to do so, to split his day and rest for a half hour at least. It does not have to be a two hour afternoon rest. Even ten or fifteen minutes would be satisfactory—if he broke his day and got some relaxation during that time. I definitely think it is beneficial and that treatment comes under the heading of psychotherapy. It includes all those things considered in daily life. All those things you would do in order to obviate any possible emotional stimulus to the patient and focus his attention on his blood pressure.

Dr. Hull: The time is up and we will draw this symposium to a close. I wish to take this opportunity to thank the three essayists for the excellent manner in which they have presented the subject.

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SYMPOSIUM ON EYE, EAR, NOSE AND THROAT

WHAT IS NEW IN OPHTHALMOLOGY

CHARLES A. BAHN, M. D.

NEW ORLEANS

Medical progress means change. Change means experimentation. Innumerable current ophthalmic experiments are in different stages of evolution and include the practical and the impractical, the wise and the otherwise. Most of them have potential value but they also have specific limitations

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and contraindications. In this very brief review, a few of these experiments have been selected because of their interest to the general physician. I hope their presentation will be of service to him in advising patients concerning opthalmic problems.

GLAUCOMA

After 60 years of research, glaucoma continues to be ophthalmology's public enemy number one. The principal reasons are: (1) glaucomatous patients do not receive efficient treatment early enough and do not continue it long enough; (2) we ophthalmologists are not always able to apply our technical knowledge of the disease to the individual needs of each glaucomatous patient.

Among the newer drugs now being experimentally used in the local treatment, especially of primary glaucoma, is D.F.P. (diisopropyl fluorophosphate). It is employed preferably as 0.1 per cent solution in peanut oil. Being much stronger than other miotics now in use, its instillation is followed by blurred vision from accommodative spasm and occasionally by headache. D.F.P. is used only as infrequently as possible and with supplementary ocular or extra-ocular treatment, if necessary, to maintain minimal ocular hypertension. During a seven month period, I have used it on 15 patients with advanced primary glaucoma whose tension could not be controlled by miotic treatment and who were poor surgical risks. In 12, the tension has been normalized. In three patients, supplementary treatment was necessary.

Operation alone does not completely cure glaucoma because the attendant intra-ocular degeneration remains unchanged. Cyclodialysis and iris inclusion operations are more generally employed in narrow angle glaucomas, and sclerectomies in wide angle glaucomas. Psychotherapy is rapidly and rightly becoming an important adjunct to other treatment in the care of the glaucomatous. Fear, worry, mental tension and other emotional disturbances aggravate or precipitate glaucoma in the predisposed. Their attendant diencephalic irritability can usually be materially reduced and their intra-ocular tension kept lower by learning to live calmly. For the glaucomatous emotional binges spell blindness. If they wish to live dangerously, they must also be prepared to die potentially sightless.

Primary glaucoma is essentially a bilateral constitutional degenerative disease in which corneo-scleral filterability and intra-ocular vascular permeability are both involved in varying proportions. If the former is dominant the corneo-scleral angle is usually larger and vice versa. The intra-ocular vascular degeneration is part of a similar bodily process which, in the diencephalic centers, sensitizes the predisposed glaucomatous eye to emotional stimuli.

Generally speaking, as long as ocular tension can be normalized and central and peripheral vision stabilized by non-surgical treatment, the immediate and later risks of glaucoma operations are not justified.

CATARACT

The treatment of primary senile cataract continues to be lens removal. No radical changes in its technic have been widely adopted during the past two decades. Retrobulbar anesthesia, akinesia, superior rectus suture, keratome incisions enlarged with scissors, and the use of multiple sutures indicates the present trend to increase safety, but with increased complexity.

Intracapsular extraction, if successful, has the advantages of more rapid recovery and less secondary surgery. Its disadvantages include: a more difficult technic, a more limited field of usefulness, and an increased frequency of serious complications, including vitreous loss and retinal detachment.

Generally speaking, two cataract dicta of a generation ago require little revision. These are: that the time for operation begins when vision in the best seeing eye is about 20/70, and that operation on the first mature cataractous eye is a necessity, but operation on the second eye is a luxury.

CAVEAT EMPTOR

It is unfortunate that the popular press feels little responsibility for those who are exploited by reading too literally its overdramatized and often distorted pictures of medical progress. If the visually handicapped understood as fully as they should

the specific indications, limitations and other disadvantages of contact glasses, corneal transplants, and eye exercises as aids to visual improvement, fewer would be employed.

For those who require heavy lenses, contact glasses during a few hours daily may be a reasonable substitute. They may be of use in vocations requiring protection such as high diving and football. In the entertainment profession they facilitate facial character expression and they may be of value to those with optically imperfect corneas. The initial cost in time, money and effort, the usually long period of adaptation, the few hours daily which they can be worn with comfort, and other disadvantages largely counterbalance their advantages even for those who violently dislike ordinary spectacle lenses.

Corneal transplantation is not a new procedure and its technic has not been materially changed during the past 20 years. Elschnig's results during the early 1920's were equal to any I have seen since. It is an old procedure with recent over-dramatization. We ophthalmologists hope that a new organization, the Eye Bank, will be of service in reducing the mortality of eyes operated upon by corneal transplantation and legitimatizing its use.

Two independent groups of ophthalmologists at Johns Hopkins and St. Louis University have proved that eye exercises are no substitute for the need of proper correcting lenses. Correcting lenses place before the eye the focusing power which the eye lacks. The focal power of the eye depends primarily upon its length and index of refraction, which obviously cannot be changed by rolling the eyes in one direction or another. The cost in time, money and effort of eye exercises as a substitute for glasses is not justified by the permanent results they afford.

Eye exercises do have a more legitimate field in facilitating the use of both eyes as a unit, especially in younger persons. In this training, the respective stages are: (1) the development of reasonable vision in each eye separately; (2) conscious fixation by each eye separately; (3) binocular fixation with stereopsis, if possible. In reading some of the popular books on eye exercises one is again reminded that credulity and audacity are without limits.

Popular fads in ophthalmology come and go. Like the story of Robinson Crusoe, they usually are based on 5 per cent fact and 95 per cent fancy. There are few proven cases on record in which sight has been improved by the ingestion of vitamins alone. The psychic highball has its legitimate and illegitimate use in the care of the visually sick. Vitamin therapy in ophthalmic practice except in a few specific conditions is largely just another form of psychic highball.

ANTI-BIOTICS

In ophthalmology, the sulfa drugs are most effectively employed in acute external focal infections due to specific organisms which include the coccal group and the virus of trachoma. Intra-ocular infections transmitted through the blood stream are less influenced by sulfa and penicillin treatment. Generally speaking, the ocular indications for penicillin and sulfa therapy are approximately the same, though the former is preferred in the more acute and severe infections ,and the latter in the less severe. Both are frequently used at the same time. Locally, the sulfa drugs are most frequently employed as a 5 per cent sulfathiazole ointment and a 30 per cent sulfacetimide solution. The former has the advantage of longer contact. Ocular allergic reactions to the sulfa drugs are relatively infrequent as contrasted with local penicillin therapy. For this reason, use of penicillin ointment and drops is being largely discontinued in ophthalmology. The most efficient ocular use of penicillin in subconjunctivally, 2000 U per c.c. As a dusting powder in infected wounds, and injected intra-ocularly the reports of its success and failure are conflicting.

The use of streptomycin in ophthalmic practice is so limited that its specific indications, limitations, and contraindications cannot yet be evaluated.

ALLERGY

The increasing importance of the allergic

factor in the causation, progress, and treatment of phlyctenular and follicular conjunctivitis, interstitial keratitis, non-granulomatous uveitis, and numerous other ocular inflammations is only now being generally recognized. In ophthalmic practice allergic desensitization is not in general use. Of the newer antihistiminic drugs, diphenhydramine hydrochloride (benadryl hydrochloride) and tripelennamine hydrochloride (pyribenzamine hydrochloride) are being experimentally used especially in non-granulomatous uveitis and vernal conjunctivitis respectively. In two personal cases of acute uveitis with a dominant allergic factor, benadryl apparently did not effect the eye, but had to be discontinued because of its side reactions in the digestive and nervous systems. Its specific value, indications, and limitations have not yet been determined. Lacrimation, itching, and photophobia in vernal conjunctivitis are frequently reduced after pyribenzamine therapy, but the structural appearance of the ocular tissues is not changed.

MILITARY OPHTHALMOLOGY

Civilian ophthalmology is indebted to military ophthalmology for a better understanding of the indications and limitations of numerous procedures. The Berman and other localizing devices have been both favorably and unfavorably commented upon as practical aids in reducing ocular trauma and increasing efficiency in the removal of especially magnetic intro-ocular foreign bodies. The routine diathermic sealing of scleral wounds to reduce subsequent retinal detachment will probably be more widely used. Undue haste in performing major operations even on injured eyes containing foreign bodies may increase the attendant risks. The time required for other necessary procedures such as localizing plates prior to operation seldom determines the fate of an eye. None of the recent substances which have been proposed for ocular implants including tantalum and the acrylic resins have any apparent superiority, nor have the different shapes suggested been shown superior to those previously in use.

MISCELLANEOUS

A new application of the basic concept expressed in the Biblical parable concerning the sower and the seed will, in my opinion, greatly influence medical thought in the next decade. Constitution (the seed), environment (the soil), and time together in varying proportions form a three-dimensional concept which more fully explains the causation and progress of practically all visual disease than does our present one all-inclusive causative conception.

The future of new medical ideas and experiments like that of unborn infants is difficult to predict. Most experiments that have become important factors in medical progress are basically only new and more efficient applications of previously known fundamentals which have been adapted to popular needs. Among the interesting and more technical ophthalmic experiments which may play a more or less important part in ophthalmic progress are: (1) the Filatov treatment of retinitis pigmentosa which includes the intramuscular injection of cod liver oil and tissue implantation; (2) tracer isotopes which may become of practical value diagnostically and therapeutically especially in neoplastic diseases; (3) air injection into the anterior chamber in glaucoma surgery to facilitate filtration; (4) rutin ingestion to reduce capillary and intra-ocular hemorrhage associated with capillary fragility and hypertension; (5) heparin injection in the treatment of intra-ocular vascular thrombosis, the use of which is not without risk; (6) x-ray and radium in the treatment of intra-ocular degenerative diseases and in the reduction of vascularity in cicatrizing diseases of the anterior eyeball.

CONCLUSION

Each of us in our own way is daily contributing to medical progress by using and evaluating more or less experimentally, concepts, remedies, and procedures which have been conceived by ourselves or others. Five years are usually required to evaluate reasonably the specific indications, limitations, and perhaps more important—the contra-indications of new remedies, concepts or

procedures. In our efforts to shorten this more experimental period and to find newer and better methods, we must never lose sight of the Golden Rule and its inescapable responsibilities.

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MALIGNANT TUMORS OF THE NASOPHARYNX

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NEW ORLEANS

The nasopharynx, although not the most frequent, is one of the most serious sites of malignant growth in the upper respiratory and alimentary tracts. The main reason for this is the lack of early symptoms and consequently early diagnosis, and the characteristic early metastasis before the primary growth has reached proportions capable of producing symptoms. The later symptoms of metastasis may so overshadow the primary tumor that many patients probably die of widely disseminated cancer with the actual site of the primary lesion in the nasopharynx unsuspected.

Cancer in the nasopharynx occurs most often on the posterior wall, in the region of the nasopharyngeal tonsil, and next in frequency on the lateral walls, on the ridge which surrounds the orifice of the eustachian tube. Occasionally, a growth may arise somewhat lower on the posterior wall near the junction of the nasal and oral pharynx. The upper surface of the soft palate and the posterior edge of the septum practically never give rise to cancer.

Cancer of the nasopharynx is much more common than reports in the literature indicate. This is because unfortunately so many cases of nasopharyngeal cancer are included with growths of the nasal cavity and of the pharynx as a whole. In statistics of carcinoma of the head and neck the average incidence of cancer of the nasopharynx is about 2 per cent.

Nasopharyngeal carcinoma usually occurs at an early age, being found more often in children and at ages below 30 than any other malignant growth of the upper respiratory and alimentary tracts. The average age is between 40 and 45 years as compared to 56-60 years for cancer of the tongue, cheek, tonsil and larynx. The average for this lesion in the army was 32 years but the age group was limited, ranging from 20 to 45 years. This is in direct comparison to that of civilian practice in that malignancies of the tongue, cheek, tonsil and larynx averaged 40 to 42 years.

Nasopharyngeal carcinoma is predominately a disease of the male, about 80 per cent or more occurring in this sex. I can recall seeing no cases among the United States Woman's Auxiliary Corps during World War II. All cases seen during military service were among soldiers, and in civilian practice the incidence is nine to one in favor of the males.

Since cancer of the nasopharynx arises most commonly at the site of the pharyngeal tonsil, it is natural that highly anaplastic epidermoid carcinomas and lymphosarcomas should make up the largest proportion of the total. Some salivary glands are present in the mucous membrane lining the lateral and posterior walls of the

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nasopharynx, so that adenocarcinoma does occur but is rare.

There is considerable disagreement as to the histologic terminology. It is generally agreed that epidermoid carcinomas make up the largest proportion of nasopharyngeal tumors. The designation of other groups is rather confusing in its varied terminology. Of the epidermoid types the predominant are transitional cell and lympho-epithelioma. Some squamous cell and some spindle cell carcinomas also occur but these are in the minority.

SYMPTOMS AND SIGNS

The development of the primary tumor produces nasal obstruction, epistaxis, nasal discharge, chronic sore throat, postnasal pain, dysphagia, sensation of a lump in the throat and nasal speech. The manifestations of the disease which first bring the patient to a physician are more often those due to secondary extension. The reason for this is that the nasopharynx is a cavity of rigid wall, which, as a part of the respiratory tract, is much wider than the nasal cavities in front or the glottis below. Obstruction in breathing will not occur, therefore, except in the later stages when the tumor has become large and bulky and usually after metastasis has taken place. No other function can be disturbed early in the course of the disease unless the growth arises near or in the orifice of the eustachian tube, so as to cause partial deafness by obstruction.

The most frequent symptoms reported are nasal obstruction or discharge, headache or local pain and defective hearing or pain in the ear. Nasal obstruction is a primary symptom in from 20 to 30 per cent of cases. Only slightly less often does the patient have a nasal or postnasal discharge, which is usually bloody. Hemorrhage is rare but may occur when an attempt is made to clear the nasal passages by blowing the nose. Symptoms referable to the ear occur in about 10 per cent of cases in the early stages of the disease and consist of persistent, progressive unilateral deafness and occasionally pain in the ear. As a later symptom or as a complication following irradiation, disturbances in hearing are common. However, because of the location of the tumor on the posterior or lateral wall, these symptoms are usually associated with some degree of metastasis since the growth of necessity must reach fair proportions and by this time glands have usually appeared.

One of the most characteristic features of the later stage of the disease is its tendency toward direct extension intracranially and intra-orbitally. Intracranial invasion occurs in one of two ways: either from the fossa of Rosenmuller which lies directly under the mesial portion of the foramen lacerum a distance of about 1 cm., or by direct erosion of bone. In addition to local pain the symptoms of intracranial invasion are those of progressive unilateral paralysis of the cranial nerves in about the following order: sixth, third, fourth, fifth, seventh and second. Involvement of the other cranial nerves is seldom seen but may occur as the growth gradually advances. In nearly all the later cases there is some erosion of bone and in about one-third of the cases with metastasis there is also involvement of the sphenoid. However, once the cranial cavity has been invaded, the growth tends to remain extradural, which means the periosteum is separated from the bone and erosion is the result rather than the cause of intracranial extension.

As the growth invades the foramen lacerum, the sixth nerve, which lies directly over the foramen, is nearer and therefore becomes involved first. The third, fourth and fifth cranial nerves lie next in proximity, just above the sixth and are naturally involved in that order of frequency.

Intra-orbital extension of the growth occurs by way of the foramen lacerum, the carotid groove and the superior orbital fissure. Invasion of the orbit results in exopthalmos, opthalmoplegia and eventually blindness. In a few cases exopthalmos is one of the first signs, which is evidence of the asymptomatic course of the disease.

Cervical metastasis is present in about 80 per cent or more of cases because of the tendency to early metastasis even when the growth in the nasopharynx is small and of

recent onset. This is the only finding on admission in over half of the cases and it usually has been present for an average of six to eight months. Most frequently involved are the upper deep cervical lymph nodes lying just below the tip of the mastoid under the upper end of the sternomastoid muscle. Next are those over the carotid bulb. After invasion of the upper deep cervical nodes, metastasis extends to the lower portions of the neck with more frequent involvement of the posterior chain in the posterior triangle than occurs in cancer of the oral cavity itself. The submaxillary and submental nodes are rarely involved in early metastasis. Widespread bilateral cervical lymphadenopathy is characteristic of the later stages of the disease.

The presence of metastasis on admission is one of the most important factors in prognosis. Intracranial invasion and involvement of the cranial nerves or orbit, universally gives a poor prognosis. If cervical metastasis has occurred only in the upper portion of the deep cervical nodes, the prognosis is fair; if the nodes of the posterior triangle or lower cervical chain are involved, the prognosis is poor. Like cancer elsewhere, a favorable prognosis requires recognition of the growth before the glands have become involved. Even in those patients treated extensively, in whom the primary site and even metastasis of the cervical glands have disappeared, if the lower cervical chain is involved, the growth is prone to recur in the chest, long bones or viscera. Even if treated and the chest becomes clear radiologically, the growth will reappear in some other area for by this time it has become disseminated.

DIAGNOSIS

The diagnosis of cancer of the nasopharynx is easy to substantiate because this area is readily accessible and yet there is probably no other form of cancer in which the diagnosis is more often delayed or entirely overlooked. This may be partly explained by the fact that in only about 50 per cent of cases are there any early local symptoms from the primary lesion. For this reason an average of eight months elapses between the onset of symptoms and a correct diagnosis whereas the average time from onset to metastasis is about six months.

Except for cancer the nasopharynx is relatively unimportant from the standpoint of disease and is the most overlooked area in routine physical examinations. It may be visualized by the nasopharyngoscope or even better by the use of a throat mirror in the pharynx, the examiner depressing the tongue and retracting the free edge of the soft palate forward. There are irregularities in contour of the mucosa on the posterior wall and a lesion in the early stages may readily be overlooked. A biopsy should be obtained of any suspicious area or ulceration and one negative biopsy does not rule out the presence of malignancy. Frequently, several biopsies are necessary before a positive diagnosis can be made. This cannot be too firmly stressed because it is in this early stage that the prognosis is most favorable.

TREATMENT

The treatment of choice is radiation, for nasopharyngeal cancer is one of the most radiosensitive of all tumors of the upper respiratory tract. Furthermore, this area tolerates heavy doses of radiation more satisfactorily than other adjacent areas such as the hypopharynx. Because cervical metastasis is highly prevalent in these cases, their successful treatment is important from a prognostic standpoint. Even in widely disseminated metastasis palliative treatment is distinctly worth-while because of the radiosensitivity of the growth. The severe pains produced by metastasis to the long bones, pelvis or spine can frequently be completely relieved by moderate doses of external radiation. Likewise, metastasis in the liver or other viscera may be rendered temporarily asymptomatic.

SUMMARY

Malignancy of the nasopharynx comprises about 2 per cent of malignant growths of the head and neck. The disease is characterized by early metastasis and because it is asymptomatic in the early stages, it is frequently overlooked until metastasis has occurred. Irradiation is the treatment

of choice because of the extreme radiosensitivity of this type of tumor. The prognosis is poor except in the early stages and even in the early stages it is less favorable than it is for the early cases in other parts of the body.

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MÉNIÈRE'S DISEASE; ITS TREATMENT

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True Ménière's disease is now classified as endolymphatic hydrops. Cawthorne and Hallpike[1] demonstrated that in true Ménière's disease there is retained endolymphatic fluid and dilatation of the endolymphatic system, particularly the scala cochlea. The cause of this endolymphatic hydrops remains in the realm of theory. The attacks of Ménière's disease are believed to be produced by the sudden escape of this retained endolymphatic fluid, which explains the nature of the attacks—the sudden, severe, true whirling vertigo with nystagmus, nausea, vomiting, and falling. The prolonged retention of this endolymphatic fluid and the dilatation of the scala cochlea produce the variable tinnitus and the eventual nerve deafness.

The goal of the medical treatment of Ménière's disease is to reduce the quantity of retained endolymphatic fluid. The Furstenburg regimen (salt free diet and ammonium chloride) has been of proved value in this respect. Histamine and nicotinic acid have been greatly exploited as symptomatic treatment for all types of vertigo. They may yet prove to be of value by altering the capillary permeability in true Ménière's disease. I prefer the Furstenburg regimen with a low constant fluid intake.

Regardless of the type of conservative treatment used, benefit is obtained in 70 to 85 per cent of cases.

There always remains a smaller percentage of patients who do not respond to conservative treatment and who are incapacitated by the attacks. These patients may be cured surgically. Since 1940, destruction of the labyrinth, the end-organ which produces the vertigo, has replaced the more formidable neurosurgical section of the vestibular portion of the eighth nerve. Destruction of the labyrinth is one of the simplest otologic operations. An antrostomy is performed and a small window is made in the horizontal semicircular canal. Through this window the labyrinth is destroyed by electrocoagulation[2] or avulsion.[3]

Eight patients with severe and incapacitating Ménière's disease (hydrops of the endolymph) of from one to eighteen years' duration who failed to respond to any known medical treatment have been treated by electrocoagulation of the labyrinth. In the uncomplicated cases (table I) the patients have been able to resume their occupations relieved of the severe vertiginous attacks. These patients still have varying degrees of unsteadiness, which is more noticeable at night but does not interfere with their living normal lives. Their preoperative nerve deafness is now complete.

ELECTROCOAGULATION OF LABYRINTH FOR MÉNIÈRE'S DISEASE (8 CASES)

Case	Sex	Age	Duration of disease Yr.	P. O. Period of rehabilitation
1	F	27	1.5	3 months
2	F	31	3	Improved; hydrops of opposite labyrinth has developed
3	M	41	1	6 months
4	M	42	3.5	6 months (psychoneurosis)
5	F	48	8	3 weeks
6	F	32	3.5	1 month
7	F	62	4.5	3 months
8	F	57	18	Convalescing

All patients except case 2, who were formerly incapacitated by recurrent attacks of vertigo, are now able to lead normal lives. They have varying degrees of imbalance, more noticeable at night, but this does not interfere with their occupation.

CONCLUSIONS

1. Ménière's disease (endolymphatic hydrops) is primarily a medical disease.

2. Surgical treatment is indicated when the vertigo fails to respond to prolonged medical treatment.

3. Destruction of the labyrinth is the procedure of choice in unilateral Ménière's disease in an unserviceable nerve deaf ear.

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4. The more formidable neurosurgical differential section of the vestibular nerve is reserved for bilateral Ménière's disease.

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THE FENESTRATION OPERATION; ANALYSIS OF RESULTS

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Deafness in otosclerosis is produced by a new growth of bone which fixes the footplate of the stapes, closes the oval window and prevents the entrance of sound into the inner ear. Early in the course of the disease the inner ear retains normal or nearly normal function. For fifty years it has been known that if a new window is made into a normal or nearly normal inner ear, serviceable hearing can be restored. For forty years otologic surgeons have tried every conceivable method of maintaining the patency of these newly created windows. However, with osteogenesis there has always been bony closure with the disappointing recurrence of deafness.

HISTORY

Success was first achieved by Sourdille[1] of France. By means of a complex three or four stage operation for making a window in the horizontal semicircular canal he was able to maintain serviceable hearing in 40 per cent of his patients. In this country the ingenious Julius Lempert[2] devised a successful one stage operation by constructing a new window in the horizontal semicircular canal. By this procedure he reported maintained hearing improvement in the greater percentage of patients. In 1940, Lempert[3] moved the position of this new window forward to the larger ampulated end of the horizontal canal, the "surgical dome" of the vestibule, a larger, deeper window less likely to close by osteogenesis. During the past seven years refinements in technic have been added by Lempert,[4, 5] Shambaugh [6-9] and others so that today a correctly performed fenestration operation will usually result in maintained hearing improvement.

In the beginning the fenestration operation was heralded, not with enthusiasm, but with scorn and ridicule. In the past ten years, it has been subjected to severe analytical scrutiny by our most conservative otologists. It is now an accepted surgical procedure and has been hailed as one of the greatest advances in all modern surgery.

TECHNIC

There are many reasons for the success of the fenestration operation with the new oval window in the ampulated end of the horizontal semicircular canal. These reasons are revealed in the technic.

In the fenestration operation the mastoid cortex is exposed through a triangular endaural incision. Mastoidectomy is performed The roof and posterior wall of the bony external auditory canal are removed. The underlying skin is preserved as a delicate tympano-cutaneous flap continuous with the upper portion of the tympanic membrane. The incus and head of the malleus are removed to gain access to the ampulated end of the horizontal semicircular canal, situated immediately superior to the oval window. All osteogenic bone dust is then removed under continuous irrigation as a large window is made in the ampulated end of the horizontal semicircular canal. The margins of the window are surrounded by a wide flat area of the nonosteogenic enchondral bone of the labyrinth; these margins are polished with a gold burr to inhibit osteogenesis further. The osteogenetic endosteum is removed, care being taken not to injure its margins. The delicate membranous labyrinth is then free to adhere to the inner surface of the flap and prevent the ingrowth of bone. Before it is turned, the inner surface of the flap is debrided under magnification and all osteogenic bone spicules and bone dust are removed. The bone inhibiting

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squamous epithelium of the flap is then turned over the new oval window so that the epithelium covering the window is continuous with the vibrating tympanic membrane. The vibrating tympanic membrane transmits sound waves to the new oval window, giving additional hearing improvement.

INDICATIONS

Early in the course of its development the fenestration operation was regarded, at best, as surgery of the last resort to be attempted only when the patient had become profoundly deaf. We have learned that it is futile to operate upon patients who are almost completely deaf and who have little residual function of the inner ear. The most gratifying results are obtained in patients with moderate degrees of otosclerosis. The details of testing and the selection of patients have been described elsewhere.[10] In general, the better the retained function of the inner ear, the more gratifying is the result.

RESULTS

To date I have performed 65 fenestration operations with increasing improvement in results. Fifty patients have passed through the immediate postoperative period, 44 of whom have regained serviceable or practicable serviceable hearing—success in 88 per cent of cases. Some of these patients will no doubt lose this regained hearing through bony closure of the new oval window. It is known that most of the windows will close within the first three months. Rarely will a window close after six months. In this series, of the patients who regained their hearing and have passed through the mosts critical six months' period, 95.4 per cent have maintained the hearing improvement. Five patients have maintained the hearing improvement for more than one year.

The result of the fenestration operation are evaluated solely upon the degree to which the formerly deaf patient has been rehabilitated. The result may be good, fair or poor. If a good result has been obtained, the patient is able to conduct the ordinary affairs of life and attend movies, church and group gatherings without significant hearing handicap. The patient with a fair result is able to understand ordinary conversation at a distance of a few feet and to conduct his affairs without a hearing aid. Regardless of the hearing improvement, if a patient is unable to do these things, the result is classed as poor.

In these 50 cases, 40 patients have received good hearing (fig. 1). Their hearing

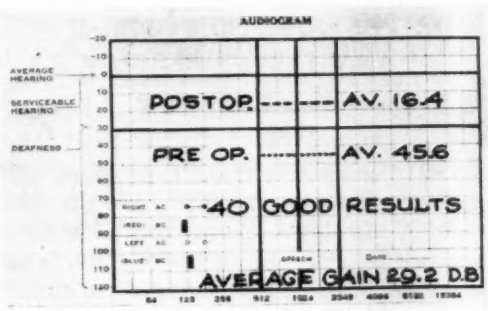

Fig. 1: Hearing improvement from the fenestration operation in 40 good results.

improved from an average preoperative level of 45.6 decibels to an average postoperative level of 16.4 decibels, an average gain of 29.2 decibels for the speech frequencies. Four patients have obtained fair results (fig. 2). Their hearing improved

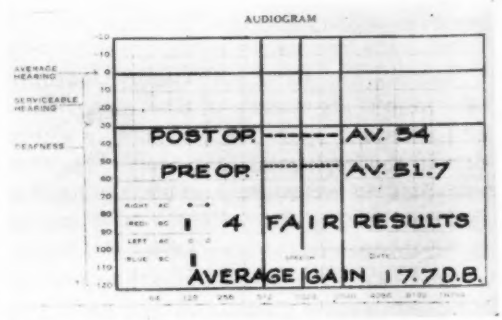

Fig. 2: Hearing improvement from the fenestration operation in four fair results.

from an average preoperative level of 51.5 decibels to an average postoperative level of 34 decibels, an average gain of 17.7 decibels for the speech frequencies.

Failures: In four patients the hearing was unchanged; in one it was made worse and there has been one closure. Four of the failures occurred in the first ten pa-

tients, three of whom were poorly selected since they did not have adequate retained inner ear function. I am unable to explain the fourth failure. Postoperative bleeding from the flap into the labyrinth was undoubtedly responsible in the patient whose hearing was made worse. The patient in whom the result was classified as a closure still has a positive reaction to the fistula test. This is not a bony closure; undoubtedly there has been an excessive formation of scar tissues in a hematoma at the new oval window. The patient still has a 17 decibel gain in hearing, but because his hearing has fallen to the 38 decibel level this case has been reported as a failure. There will be more closures in this series. Only time can determine the final results. However, other surgeons have found that with increasing experience there has been an improvement in their restoration and maintenance of serviceable hearing.

COMPLICATIONS

In this series there have been no severe complication and no deaths. There have been no cases of permanent facial paresis or permanent facial paralysis. Transient facial paralysis developed in one patient on the eighth postoperative day but completely disappeared by the twenty-first postoperative day. There have been no cases of persistent vertigo. One patient complains of mild vertigo on sudden change of position; this may be labyrinthine or functional vertigo. There is one patient who has mild suppuration of the operative cavity which may yet be cured. These results, which are comparable with others reported throughout the country, indicate that the fenestration operation is relatively free from serious risk.

CONCLUSIONS

Physicians and surgeons are often confronted with the problem of advising their patients and friends in regard to the fenestration operation. Patients can be told that the operation is relatively free from serious risk, and that in selected cases a properly performed fenestration operation will restore serviceable hearing, which, in a large percentage of cases will last over a period of years if not permanently.

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LOUISIANA STUDY OF CHILD HEALTH SERVICES*

LOUISIANA STATE PEDIATRIC SOCIETY IN COOPERATION WITH THE AMERICAN ACADEMY OF PEDIATRICS

FOREWORD

This report of child health services in Louisiana represents our state's part of a nationwide study which has been in progress during the past three years under direction of the American Academy of Pediatrics. It is expected that this information and the cooperative enterprise which has secured it will continue as a constructive effort toward improving the health of infants and children in Louisiana.

The nationwide study was conceived in 1944 by members of the American Pediatric Society who, noting increasing public awareness of health matters, expressed their belief that physicians should assume *primary* responsibility in planning for the

*This is the first of a series of three articles, prepared by an Editorial Committee from the Louisiana State Pediatric Society.

medical care of the nation's children. A committee, representing the American Academy of Pediatrics, the American Pediatric Society, and the Maternal and Child Health Advisory Committee of the United States Children's Bureau, presented a report which was unanimously accepted by the members of the Academy during its 1944 meeting. The Academy then committed itself to the following objective:[1]

"To make available to all mothers and children in the United States all essential preventive, diagnostic, and curative medical services of high quality which, used in cooperation with other services for children, will make this country an ideal place for children to grow into responsible citizens."

Faced with the inadequacy of data necessary for planning, the Academy launched a nationwide study of existing health services and facilities. Realizing the need of statistical services not ordinarily available to such a medical organization, the cooperation of the U. S. Public Health Service and the Children's Bureau was requested. A large measure of credit must go to these agencies for their willingness to assist and cooperate in the study, while leaving its development and direction entirely in the hands of the Academy's Committee. Generous financial assistance on the national level was afforded by the National Foundation for Infantile Paralysis, the National Institute of Health, the Field Foundation, and a number of commercial firms.

A "pilot study" was conducted in North Carolina, where technics were developed and tested. The North Carolina report[2] was published in April, 1948, and other states are now reporting.

Fact-finding is not enough. The Academy of Pediatrics has therefore appointed a national Committee on Improvement of Child Health for the purpose of reviewing the study and making recommendations on a national level. To implement the findings within each state, it is hoped that local advisory committees will follow through in the same manner.

The purposes of the study were presented to the Louisiana State Pediatric Society in April, 1946. This body voted unanimous approval and accepted full responsibility for conduct of the study in Louisiana. Subsequent approval was given by the House of Delegates of the Louisiana State Medical Society and the Louisiana State Dental Association. The study in Louisiana was immediately instituted. It was completed and the office was closed in July, 1947. Thanks are due to the physicians and dentists of the state for their high degree of cooperation with the study and to the individual pediatricians who gave so generously of their time in its conduct.

Appreciation should also be expressed to the Louisiana State Department of Health and the Caddo-Shreveport Health Unit for their loan of two executive secretaries and for making available space, equipment, and other necessities for the study office. The Director of Local Health Services supervised the Study of Community Health Services.

The contribution of funds by the New Orleans and Shreveport Chapters of the National Foundation for Infantile Paralysis, the assistance of its State Representative and its local chapters are gratefully acknowledged. The Woman's Auxiliary to the Louisiana State Medical Society, through its local chapters, gave much assistance in follow-up procedures.

The Louisiana Commission on Hospital Care, authorized by the State Department of Institutions, rendered valuable services in the collection of data related to hospital services. The Department of Pediatrics of Tulane University generously permitted one of its fellows to serve as field representative in completing the study of pediatric services in hospitals of the state.

An advisory committee has been established, with representatives of the above and other interested organizations, including the Louisiana Hospital Association, the Parent-Teacher's Association, New Orleans Medical and Surgical Journal, the Academy

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[1]J. Ped. 25:625, Dec., 1944.

[2]Child Health Services in North Carolina. Supplement to North Carolina Med. J., Apr., '48.

of General Practice, the State Departments of Education and Public Welfare and the Louisiana Conference of Social Welfare. This committee will be especially valuable in translating the data of the study into action and in stimulating local interest.[3]

This report is being made available initially to the physicians and dentists of the state, then to any or all other interested organizations and individuals. In reporting these facts relating to child health in Louisiana we hope to stimulate an awareness of the health needs of children and to arouse interest in a concerted program for continued improvement.

CHAPTER I

INTRODUCTION

This study was set up to secure all possible information concerning facilities and services available for the health and medical care of children[4] in Louisiana. The sources of information were (a) physicians and dentists; (b) voluntary and public community health services; (c) hospitals admitting children or maternity cases. A separate study of pediatric education was conducted on the national level and will not be dealt with in this report.

The data were recorded on standard forms identical with those used in all other states, relating to particular categories of information. These forms were distributed by mail or by personal visits by the executive secretary, field staff, or individual pediatricians. As a consequence of the unanimous approval of the State Pediatric Society and in order to take advantage of the individual pediatrician's knowledge of local conditions, each member was requested not only to fill out his own schedule, but also to assist in securing information from hospitals, community services, and other physicians in his area. Moreover, each hospital of five or more beds was visited by a physician who checked final details.

In evidence of the splendid spirit of cooperation exhibited by all professional groups, this report is based on complete returns from 89 per cent of the pediatricians, 77 per cent of all physicians, 70 per cent of practicing dentists, 100 per cent of hospitals and 95 per cent of public health units in the state.

A record of each physician's and dentist's visits was obtained for a single day. One-seventh of these doctors reported for each of the days in the week, thus giving a complete composite picture. The records for pediatricians covered twenty-eight consecutive days. Corrections were made for seasonal variations and adjustments for those not reporting were calculated on the basis of a special study previously conducted by the National Office. Schedules for community health services and hospitals covered one year. Information concerning physicians and dentists in practice relates to the year 1946; hospital figures cover 1945-46; population estimates and community health services are reported on the basis of the year 1945. Since the most recent official census figures are for the year 1940, child population in each parish, as of July 1, 1945, was based on a special estimate[5] taking all factors into consideration.

COMPARISONS WITH OTHER STATES

Although the national report and most of the state reports have not yet been published, many figures are now available for comparisons between states. In making such comparisons, it must be recognized that people often cross state or county lines to secure medical care. Certain valid conclusions may be reached, however, especially when regions are compared. For the latter purpose, the national office has di-

[3]We gratefully acknowledge the advice and assistance of the director and staff of the national office of the Study.

[4]In this report "children" refers to persons under 15 years of age, including newborn, unless otherwise specified.

[5]Data furnished by national office, Study of Child Health Services. Based on figures from the U. S. Bureau of the Census and the Louisiana State Department of Education.

vided the country into five large regions: Northeast and Central, Southeast, Southwest, Mountain and Plains, and Pacific (Fig. 1). Some of these groupings were ef-

Figure 1. Regions, average annual income per capita (1944-1946) and per cent of total population which is children in each (1945).

fected in an attempt to keep major medical service areas intact.

COMPARISONS WITHIN LOUISIANA

An important aspect of the study is the determination of medical facilities and services available to local communities and families, not merely in the state as a unit. For this purpose, one must take into account population density (cities, towns, rural areas), proximity to cities where services might be available, and travel modes whereby these cities may be reached. Parishes[6] have therefore been grouped, in accordance with similar nationwide classification, into metropolitan (having cities of 50,000 and over); adjacent (geographically contiguous to metropolitan); isolated (not touching a metropolitan county), which is subdivided into semirural (having an incorporated town of 2,500 or more) and rural (those without such towns). (Fig. 2).

According to this classification, Louisiana has 4 metropolitan[7] parishes, Orleans, Jefferson, Caddo and East Baton Rouge; 14 adjacent; 30 isolated semirural and 16 isolated rural.

THE ECONOMIC AND CHILD HEALTH SETTING IN LOUISIANA

It is not possible in this report to consider all of the geographic, racial, cultural, and other socio-economic factors which influence the health of Louisiana's children. Mention of only a few will highlight this relationship and suggest problems which are allied to health. Louisiana is one of the southern states which has suffered economically because of primary dependence on agriculture and unrefined natural resources. During the past quarter century exploitation of oil, gas, minerals, and timber has improved this situation, so that economic factors now appear favorable for the future of the entire state.

The literacy rate, however, is among the lowest of the entire nation and adds to the medical economic problems of the hill land farmer of north Louisiana, the negro of the fertile valleys and cities, and the French trapper-fisherman of the coastal parishes. The latter also suffers because of transportation handicaps, even when near medical centers.

The national study confirms the generally accepted fact that the economic status of a region or state is an important determining factor in the amount and distribution of medical care. The income per capita in Louisiana for the period 1944-46 was $811.[8] Although higher than that of the majority or average for southern states (Fig. 1), this figure is low in comparison with the national average of $1141 per capita and is exceeded in 37 of the 48 states. Moreover, it is regularly demonstrated that income per capita in rural counties is likely to be only one-half to two-thirds that of metropolitan counties.

Conversely, low income states and counties tend to have a higher proportion of children in the population. Louisiana's child population is estimated to be approximately 34 per cent of the total state popu-

[6]In Louisiana "parishes" are geographic and political areas which correspond to "counties" in other states.

[7]Hereafter, in this report, mention of metropolitan areas in Louisiana refers to those areas surrounding the three large cities, New Orleans, Shreveport and Baton Rouge.

[8]Sales Management: Vols. 54, 56 and 58, issue no. 10 of each volume. Copyright, Sales Management, Inc.

lation, whereas in the nation as a whole, only 28.3 per cent of the population consists of children (Fig. 1). Louisiana's child population in 1945 was estimated to be 775,861, of which 27 per cent were in the metropolitan parishes, 13 per cent in adjacent, 48 per cent in isolated semirural and 12 per cent in isolated rural parishes (Fig. 2). Sixty per cent of Louisiana's children reside in rural parishes; this figure may be compared with a national average of 36.5 per cent.

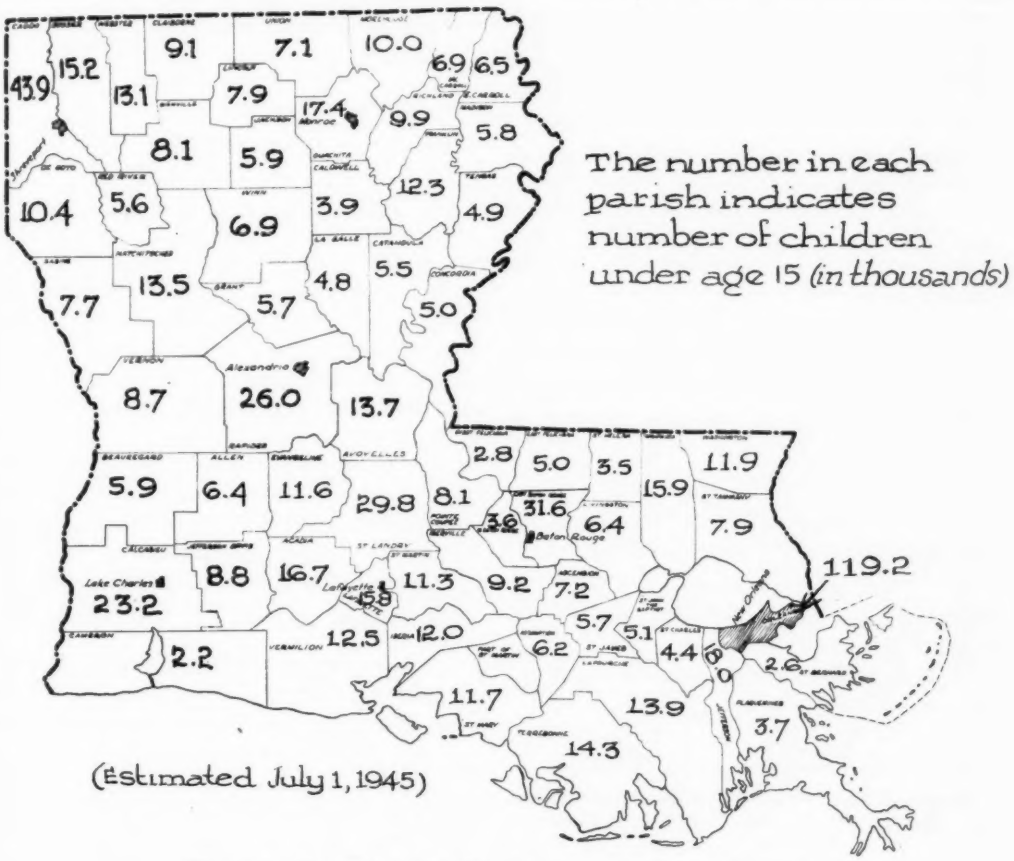

Figure 2. Population of children in the parishes of Louisiana.

The state's death rate[9] during 1940 was the fourth highest in the nation, and during the last war Louisiana had the second highest percentage of draft rejections among all states.[10]

In 1945, 57,838 births[11] occurred in Louisiana, of which 39 per cent were negro, the third highest percentage of non-white births in the United States. The national figure was 12.4 per cent non-white births. During the same year, 80.8 per cent of live white births and 42.4 per cent of live negro births in Louisiana were attended in hospitals. However, 47.6 per cent of the negro births and 4.5 per cent of the white births had no medical attendant. It is gratifying to note that the percentage of both white

[9]Age adjusted death rates in the United States 1900-1940; Vital Statistics: Special Reports, Selected Studies, 23: No. 1, June 26, 1945. National Office of Vital Statistics, U.S.P.H.S.

[10]Hirschfeld, G. and Strow, C. W.: Comparative Health Factors among the States, American Sociological Review, 11, No. 1, Feb. 1946.

[11]National Office of Vital Statistics, United States Public Health Service.

and negro births which are attended by physicians and occur in hospitals has been increasing from year to year; figures for 1946 show further improvement.

Infant mortality is an important index of child health. During the period from 1941 through 1945, Louisiana's average infant mortality[11] (47.8 deaths under one year per 1000 live births) was the fourteenth highest of all the states. It should be noted, however, that marked improvement in infant mortality has been effected in Louisiana, from 70.1 in 1933, to 37.2 per thousand in 1946 (Fig. 3). It is also noteworthy that reported infant mortality in the isolated rural parishes[12] during the period 1941-45 was as low as it was in the metropolitan parishes of this state and almost identical with the national rate for rural counties. Moreover, the infant mortality for whites in Louisiana during 1945 was 33.2—twentieth among the states and lower than the national rate of 35.6. In the same year, the mortality for non-white infants in Louisiana was 58.3, ranking the state seventeenth for non-white mortality, and comparing with the national average of 57.0.

Figure 3. Trends of infant mortality in Louisiana (1927-1946), compared with national trends.

SUMMARY

1. Consideration of health facilities and needs of Louisiana's children must take into account numerous geographic, economic, racial and cultural factors which have had adverse effects in the past.

2. Louisiana's income of $811 per capita during 1944-46 compares favorably with that of southern states but unfavorably with other sections of the country.

3. Sixty per cent of Louisiana's children live in isolated rural and semirural parishes.

4. General health factors in the state present an unfavorable picture; however, infant mortality rates for both white and colored show marked and steady improvement. The rates now compare well with the nation as a whole and the percentage of babies born in hospitals has increased markedly.

CHAPTER II

TOTAL VOLUME OF CHILD HEALTH SERVICES

The total volume of medical care to children was considered for our purposes to include (1) visits made by children to physicians' offices, and physicians' visits to children at home, (2) visits to clinics or conferences, and (3) days spent in hospitals. Figures obtained from the physicians themselves, as well as from hospitals and community health services, were employed to calculate the actual number of children receiving medical care on an average day. Each item received equal weight. It was found that, on an average day during the study period, 6762 children were seen by private physicians in home or office, 231 were seen in clinics and 1516 children were in hospitals.

Figure 4 demonstrates the total amount of care given per 1000 children in Louisiana as compared with the highest average and lowest rates found in the United States. In spite of the fact that there is no objective method of determining exactly what constitutes adequate medical care for children in any state, it can be safely assumed that in none, regardless of geographic or social differences, are they receiving too much. One would be overconfident to conclude that the children in our state require less medical care than those in other states, but it is apparent from this chart that they are receiving less, that is, our rate is less than half of that in the most favored state

[12] U. S. Children's Bureau, Division of Statistical Research, Feb. 16, 1948.

TABLE I

CHILDREN UNDER MEDICAL CARE IN LOUISIANA ON AN AVERAGE DAY

	Louisiana	Metropolitan and Adjacent Parishes	Isolated Parishes
Children visited by physicians	6762	3238	3524
By general practitioners	4817	1678	3139
By pediatricians	998	823	175
By other specialists	947	737	210
Children visiting clinics	231*	167	33
Out patient departments	117*	82	21
Well-child clinics	97*	85	12
Mental hygiene clinics	3*	.....	.....
Clinics for the physically handicapped	14*	.....	.....
Children in hospitals	1516*	887	563
In general hospitals	1450	887	563
In special hospitals	66*	.....	.....
Total children under medical care	8509	4292	4120

*Includes items not classified by parish group and institutions with statewide service.

and about one-fifth less than the average for the nation. Louisiana children, furthermore, are receiving less care in each of the three categories: private practice, clinics, and hospitals, so that the deficiency is not confined to any particular type of medical care.

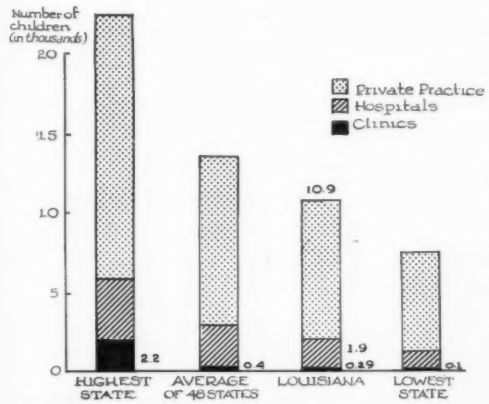

Figure 4. Total volume of medical care for children on an average day, per 1000 children in Louisiana; comparison with other states.

From the following table, it is evident that the children in isolated communities receive only two-thirds as much total medical care as those in metropolitan areas; throughout the United States the former receive from three-fourths to nine-tenths as much as do the latter.

TABLE II

NUMBER OF CHILDREN IN LOUISIANA UNDER MEDICAL CARE PER DAY PER 1000 CHILDREN

Type of Parish	Total children under medical care	Visited by physicians*	Visiting clinics**	In hospitals
Metropolitan and Adjacent	13.7	10.4	0.53	2.8
Isolated	8.8	7.5	0.07	1.2

*Office and home.

**Out-patient departments, well-child conferences, mental hygiene clinics and clinics for the physically handicapped.

The southeastern group of states as a whole has a rate of 10.9 children per 1000, under medical care in metropolitan counties as compared with 8.4 in isolated counties. Therefore, although Louisiana had about one-third more children under care in the metropolitan parishes than is generally found in this section of the country, our rate shows little variation from the regional average for children in isolated counties. This results in a greater disproportion in the amount of such services for children in rural and urban areas of our state than was found for most other states.

SUMMARY

(1) Children in Louisiana receive about one-half as much medical care as those in the state with the highest rate.

(2) Children in isolated parishes receive about two-thirds as much care as children in metropolitan and adjacent parishes of Louisiana, and less care than that received by children living in isolated areas of most other states.

DENTAL CARE

Dental care for children in Louisiana is provided almost entirely by dentists in private practice: on an average day 1325 children visited dentists' offices and 21

[13]National Office of Vital Statistics, United States Public Health Service.

visited dental clinics. Children here receive approximately one-half as much dental care as those in the average state, and only one-fourth as much as those in the state with the highest rate. Dental clinics, serving 0.02 children per 1000 children, yield a rate that is one-fifth of the national average. From the following table it will be seen that in isolated parishes, where dental services are generally limited, clinics are practically non-existent.

TABLE III

NUMBER OF CHILDREN IN LOUISIANA UNDER DENTAL CARE PER DAY PER 1000 CHILDREN

Type of Parish	Private Dentists	Dental Clinics
Metropolitan and adjacent	2.29	0.05
Isolated	1.31	0.006

SUMMARY

(1) More than 98 per cent of dental care for children in Louisiana is rendered by dentists in private practice.

(2) Children in Louisiana receive about one-half as much dental care as those in the rest of the nation.

(3) Facilities for dental care to children in isolated parishes are inadequate.

CHAPTER III

HEALTH SUPERVISION

Continuing supervision, with periodic physical examinations, is considered essential in assuring health for children. Although preventive measures in the field of communicable diseases have been successfully carried out by official agencies for many years, today there is an ever-increasing demand on the physician in private practice to supply similar and allied services, particularly for infants and children. Parents are manifesting far greater interest in the maintenance of the child's good health as a *primary* consideration. Time spent in health supervision now constitutes a relatively large proportion of the private physician's daily work with children. In Louisiana, 46 per cent of visits to pediatricians and 15.6 per cent of visits to general practitioners were made for health supervision.

In Fig. 5 is depicted the number of children who received health supervision on an average day in Louisiana: 3.15 per 1000 children under 5 years of age.[14] This rate was less than one-third that for the highest ranking state, and about two-thirds that of the average for the United States generally.[15] The rate for Louisiana was slightly higher, however, than that for the entire southeastern region which was 2.9 children per 1000 children under age 5.

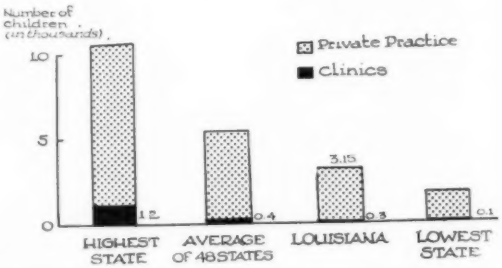

Figure 5. Children receiving health supervision on an average day, per 1000 children in Louisiana; comparison with other states.

It is apparent from Fig. 5 that 90 per cent or more of the health supervision of preschool children in this state was furnished by physicians in private practice and about 10 per cent by public agencies. Many of the conferences arranged by public agencies, moreover, were actually conducted by private practitioners (see Chapters IV and V). Further breakdown reveals that among private physicians, 58 per cent of this care was extended by general prac-

[14]This may be slightly overstated because figures for Well Child Conferences are based on attendance to age 6.

[15]Health Services for Children in the United States. American Academy of Pediatrics, Committee for the Study of Child Health Services. To be published by the Commonwealth Fund.

titioners, 41 per cent by pediatricians, and 1 per cent by other specialists.

As with total medical care, the amount of health supervision varied with parish type; again a lower rate of care was found in isolated parishes. In this instance, however, parishes adjacent to metropolitan areas showed the lowest rate for any, demonstrating that mere proximity to thickly populated regions does not guarantee adequate medical care. Comparison with rates for the nation and among parish or county types follows in Table IV. Figures for metropolitan areas of Louisiana compare much more favorably with the national average than do the others. Further discussion of health supervision will be incorporated in the discussions included in Chapter V of this series.

TABLE IV

NUMBER OF CHILDREN UNDER 5 YEARS RECEIVING HEALTH SUPERVISION ON AN AVERAGE DAY PER 1000 CHILDREN: COMPARISON BETWEEN LOUISIANA AND THE UNITED STATES, BY COUNTY OR PARISH TYPE

Type of County or Parish	Average Rate in Nation	Rates in Louisiana
Metropolitan counties	6.3	5.98
Adjacent counties	4.1	0.78
Isolated semirural	3.7	2.62
Isolated counties	2.1	1.04

SUMMARY

1. On an average day in Louisiana, 3.15 of every 1000 preschool children received health supervision; this rate was one-third less than that for the United States generally.

2. Physicians in private practice rendered more than 90 per cent of this service.

3. The amount of health supervision given in metropolitan parishes is far greater than that given in other parishes.

NEW ORLEANS
Medical and Surgical Journal

Established 1844

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FORTY-SECOND ANNUAL MEETING OF THE SOUTHERN MEDICAL ASSOCIATION

Miami, Florida, October 25-28, 1948

The meeting in Miami has always been one which has many attractions to the members of the Southern Medical Association outside of the features of the program. This year the Louisiana State Society is honored in having Dr. Lucien A. Ledoux of New Orleans as President of the Southern Medical Association.

The program is a most attractive one. The pattern will be similar to that which has been followed in previous years. Monday morning will be set aside for registration of the members and guests of the Southern Medical Association. The afternoon will be "Miami Day", with a program of a clinical nature, arranged by the profession of Miami. Beginning Tuesday morning, there will be the successive meetings of the twenty-one sections of the Southern Medical Association. Each section will have one half-day session.

In addition to the scientific program, many other interesting features have been arranged, such as sports for which Miami is so well known, and golf. A postconvention trip has been arranged to Cuba and Nassau.

The prospect for the whole meeting is a most satisfactory one. The meeting of the Southern Medical Association is the one meeting of the year at which the doctors of the South have the opportunity to learn to know each other and to renew acquaintances. At our various other medical meetings, specialization usually prevents anything more than a very limited contact with one's fellow-practitioners. The prospects for the coming session are indeed inviting.

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THE TEN-YEAR HEALTH PROGRAM OF THE FEDERAL SECURITY ADMINISTRATOR

On September 2, 1948, the Federal Security Administrator, Oscar R. Ewing, submitted a report to the President of the United States. This is a personal report, which when it was submitted was accompanied by a statement that the Administrator had secured the advice of more than 800 professional and community leaders—referring to the National Health Assembly.

On the one hand, this report is praised as a comprehensive plan for the betterment of the nation's health. This praise comes chiefly from those who have been active in supporting the various schemes that will lead to State Medicine, if followed. On the other hand, the report is looked upon as a campaign document, produced and

publicized at a time when it would have the most value for campaign purposes. From the medical point of view, the plan as a whole is another exhibition of Eutopian planning and thinking. Although Mr. Ewing is quoted as saying that the new plan is not "anything remotely approaching a program of socialized medicine," from the point of view of the practicing physician such a plan, if put into operation, would ultimately lead—in less than a ten-year period—to nothing more than *socialized medicine*.

The report asserts that "close to 70,000,000 people will have difficulty in providing adequate minimal care for themselves and their families." In other words, one-half the population is invited to carry in whole or in part the medical needs of the other half of the population. To this end a four-phase time table is presented.

Phase 1 is that of passage of Federal legislation and the setting of broad policies.

Phase 2 is a three-year tooling-up period to establish procedures towards services.

Phase 3, initial operation geared to existing facilities.

Phase 4, ultimate expansion to include complete medical coverage for everyone.

The expense that this will involve is approximate. Variously stated, it was thought that it would be $4,000,000,000 a year for the medical phase of the program, and an additional $10,000,000,000 for insurance. Such a scheme and such an expenditure would lead to the development of the most expensive and rigid bureaucracy in the history of our government.

This phenomenal taxation and regimentation is being proposed without assurance that it will accomplish any of the objectives for which it is being advocated. The position that organized medicine takes in this and other schemes of State Medicine is not that medical service is perfect as it is today, but that it has been brought to its present state of efficiency through the efforts of doctors themselves, and that the only plan that may be relied upon for progressive improvement in the field of medical service is through self-determination.

When the Ewing report is looked upon in the light of what it will do to medical services of this country, and in the light of its being an essential part of the Truman program, there is little doubt on which side of the election the interests of organized medicine will lie.

———o———

PROLAPSE OF THE GASTRIC MUCOSA

Symptoms with reference to the stomach are many, but organic disease within the stomach which will produce these symptoms is comparatively infrequent. In recent years, an additional organic disorder of the stomach has been recognized and can be looked upon as an explanation for a certain part of the dyspeptic's symptomatology.

Prolapse of the gastric mucosa through the pyloric ring is productive of signs and symptoms. The frequency of this condition has been indicated as being approximately equal to that of gastric ulcer.

The symptoms are not distinctive but are usually referable to disturbances in the upper gastrointestinal tract. They may be likened briefly to those of an atypical ulcer history. Intermittent attacks of epigastric distress occur, cramplike pain, a certain feeling of fullness after eating, and occasionally nausea and vomiting. There is a tendency for this condition to be relieved by small amounts of bland foods, or liquids, but seldom by alkalies. During an attack, solid food appears to precipitate an intensification of the symptoms.

The physical findings are not significant in themselves. Pain on deep palpation in the region of the pylorus is put down as a finding which is frequently noted at physical examination.

The diagnosis may be suspected when the history of dyspeptic disorder is atypical and yet persistent. It may also be suspected when the supposed ulcer is refractory to the usual ulcer regime. The diagnosis is primarily roentgenographic. The typical defect that the roentgenologist may look

for is a negative cauliflower-like defect in the base of the duodenal bulb opposite the pylorus, and this varies in size and shape during a single examination and upon repeated examination. It is also described as an umbrella or mushroom deformity, filling the base of the duodenal cap, but not deforming the outline of the cap. Hence, the duodenal cap is not as irritable as when a deformity of like size is due to an ulcer. In some cases, the rugae of the gastric mucosa can be traced through the pylorus into the deformity described. In certain instances, the fluoroscopic examination is suggestive of the diagnosis. However, it is stated that conclusive evidence is largely dependent upon identification of these same abnormalities in the films.

The condition has to be differentiated from all the usual organic disturbances in the antrum and duodenum. Among these are: Ulcers, either in the prolapsed mucosa or in the duodenum; hypertrophy of the gastric mucosa; polyps; duodenitis; and carcinoma.

The cause of the prolapse is regarded as an abnormal disturbance of gastric peristalsis and function. It is variously suggested that in response to disordered neuromuscular activities of the stomach, the loose connective tissue between the mucosa and the muscularis is stretched. That in response to further disordered action, this mucosa in some way is caught in the peristaltic wave and carried into the pylorus. Once there, it is reasonable to expect that reflex disturbances will have the action of intensifying muscle spasm, which in turn is followed by edema and general gastric irritability.

The treatment of this condition is both medical and surgical. In the majority of cases, the patient's symptomatology subsides with gastric sedation and a bland diet. In certain instances, surgery is advised when the pain is intractable or when hemorrhage and gastric retention are significant factors.

Prolapse of the gastric mucosa thus becomes an additional organic cause for dyspepsia. The possibilities of its existence may well come under consideration when the patient's symptoms cannot be otherwise explained.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

LOUISIANA PREPAYMENT PLAN FOR SURGICAL SERVICE

HAVE YOU INFORMED YOUR SECRETARY ABOUT BLUE SHIELD?

The Louisiana State Medical Society organized the Louisiana Physicians Service two years ago. The funds needed for the organization of this nonprofit corporation were contributed by the State Society. The plan was subsequently approved by the Council on Medical Service of the AMA and was granted its seal of acceptance and was also accepted into full membership of Associated Medical Care Plans, which makes it a participant in the National Blue Shield Plan.

The public, realizing that the doctor organized the Blue Shield Plan to help meet the hazards of catastrophic cost of surgery, readily accepted the plan. Since our organization we have enrolled more than 26,000 people in Louisiana in our Blue Shield Plan. That alone is proof that the public has accepted our plan.

It is true that in the beginning the plan was not perfect and it was necessary for us to make certain revisions. However, necessary things have been done and the

plan is now your plan and deserves your wholehearted support.

There is a doubt, however, as to whether or not our own members and their secretaries have accepted their own plan. We are being confronted every now and then with complaints from the members of our Blue Shield Plan, who, upon contacting their doctor, are surprised to find the doctor and/or secretary not familiar with the Blue Shield Plan. This is indeed discouraging, to say the least. Many doctors have signed agreements to participate in the plan; likewise, many doctors have then neglected to explain the details of the Blue Shield Plan to their secretaries and receptionists.

Your secretary is an important cog in the machinery. See that she has the necessary fee schedule and service blanks. If your secretary understands what the doctors are trying to do with Blue Shield, and the details of Blue Shield, we could go a long way in developing the plan, which, as you know, is the profession's answer to the bureaucrats. If your secretary knows that a single patient who is earning less than $2000.00 a year, or a family whose income is less than $3000.00 a year, is eligible, and that you have signed an agreement to furnish the services covered by the Plan for the fees set forth in the fee schedule, she is then in a position to properly handle and assist your patients with their financial responsibility for your services.

When our representatives contact the public and state that the Blue Shield certificate will do certain things, the doctors who are participating in the plan must see to it that the services agreed to by the participating physicians are performed.

Have you instructed your secretary to ask each patient, at the time she is securing the vital information so necessary to you (such as name, address, etc.), to ask the patient if he is a member of the Blue Shield Plan? Find out at the time you are making your financial arrangements. If, when making these arrangements, there is a doubt in your mind as to whether or not the patient is in the low income group, and thereby entitled to full coverage, suggest to the patient that he convince you he is in the low income group. You realize, we are sure, that if the patient's income exceeds the $2000.00 and $3000.00 brackets as mentioned above, you make your regular charge for such services and apply the payment from the Plan as a credit against your charge. These and many other suggestions could be given to your secretary which would assist you and the Plan tremendously.

We cannot urge you too strongly to educate your secretary as to what we are trying to do with the Blue Shield Plan.

Should you or your secretary desire any information, just drop us a line c/o Louisiana Physicians Service, Inc., Room 103, 1430 Tulane Avenue, New Orleans, La.

—o—

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

CHANGE ON FRONT COVER OF THE JOURNAL

The space previously occupied by the Fenwick Sanitarium on the front page of the Journal has been bought by Eli Lilly and Company at a price double that charged to the Fenwick Sanitarium. For this reason, the Fenwick Sanitarium has purchased space facing Eli Lilly insert page of the Journal, opposite the first page of reading matter. The Journal Committee and the Fenwick Sanitarium regret the necessity for this change since the Fenwick Sanitarium has occupied this space in our Journal for so many years.

The Blue Shield shown above is the adopted symbol of non-profit medical and surgical care plans approved by the Associated Medical Care Plans. The emblem will be identified in the public mind with prepaid medical and surgical care just as the Blue Cross symbolizes prepaid hospital care.

The Blue Shield Plan is founded upon three principles:

1. Voluntary participation and the preservation of freedom for the patient and his doctor.

2. Free choice of doctor, by free patients, from among free doctors.

3. A minimal and fair payment for good medical care when the patient's income or resources are limited.

The Blue Shield Plan was designed to serve you and your patients. It can operate successfully only if each physician gives all necessary information when submitting claims. Insufficient data causes delay in making payments and increases administrative costs.

By becoming a Participating Physician in the Blue Shield Plan, you signify your belief in the "voluntary way"; you declare your opposition to compulsory "State Medicine"; and you join with other social-minded physicians who are giving their active support to your own profession-sponsored medical care Plan. Have you done your part?

Your office assistant will find this column helpful in filling out claim forms. Will you suggest that she refer to it regularly for instructions?

SECOND DISTRICT MEDICAL SOCIETY

The regular meeting of the Second District Medical Society was held at the Wigwam Restaurant, Dr. Joel Gray president, presiding. Dr. Ambrose Storck presented a paper and films on the activities of the Louisiana Division of the American Cancer Society. Dr. David Fichman then gave a talk on the Community Chest. A short business session followed.

MEETING ON TROPICAL MEDICINE

There will be a meeting in New Orleans, December 5-8, of groups interested in tropical medicine in the United States. The four societies which will meet jointly, with headquarters at the Roosevelt Hotel, are the American Society of Tropical Medicine, the National Malaria Society, the American Academy of Tropical Medicine, and the American Society of Parasitologists. A number of papers will be presented on subjects in the various branches of tropical medicine and parasitology and all members of the Louisiana State Medical Society with exception of interns and residents are invited to attend on proper registration. Registration fee $1.00.

BOOK REVIEWS

The Years After Fifty: By Wingate M. Johnson, M. D. New York, McGraw-Hill Bk. Co., 1947. Pp. 153. Price, $2.00.

This delightful, interesting, and informative small book, though meant primarily for the layman, may be read with profit by the physician. The author capably blends a mixture of anatomy, physiology and pathology in order to make the rationale of hygiene and psychosomatic medicine readily understandable to the intelligent reader.

I. L. ROBBINS, M. D.

Office Immunology, Including Allergy: Edited by Marion B. Sulzberger, M. D. and Rudolf L. Baer, M. D. Chicago, Year Book Publishers, Inc., 1947. Pp. 420. Price, $6.50.

This is a very useful book to the general practitioner for it brings together between two covers the most important immunologic procedures in a concise practical way. Thus the immunology and prophylaxis of all of the common, and most of the unusual infectious diseases are covered. A good synoptic review of common technics; diagnostic, prophylactic and therapeutic, is included. The sec-

tion on dermatologic immunology is both authoritative and useful, especially in the discussion of eczematous contact-type allergic dermatitis. The book can be unreservedly recommended to the clientele for which it is intended.

VINCENT J. DERBES, M. D.

Handbook of Psychiatry: By Winfred Overholser, A. B., M. D., Sc. D. and Winifred V. Richmond, B. S., A. M., Ph. D. Philadelphia, J. B. Lippincott Company, 1947. Pp. 252. Price, $4.00.

Dr. Overholser and Dr. Richmond have eminently succeeded in producing an outstanding textbook of psychiatry which will please everyone in the field.

The first portion of the book gives a brief introduction to what is covered in the field of psychiatry, psychology and psychoanalysis and in the second chapter considerable effort is made to show the errors in the etiology of mental disease common in many lay minds. It is refreshing to see that an effort is made to show that heredity, fatigue, overwork and sexual excesses have been utilized far too long a time in an attempt to explain emotional disturbances.

Dr. Overholser discusses at length modern hospitalization; the admission procedures involved in the care of a psychiatric patient and then he proceeds to review briefly the various psychoses, psychopathic states, and psychoneuroses. The author is eminently fitted to discuss the relation between mental disease and crime since, for several years, he has written extensively on this subject. It is regretted that this particular section of the book is not more extensive.

All in all it is felt that this new text book on psychiatry can be wholeheartedly recommended.

JOHN W. BICK, JR., M. D.

Internal Medicine in General Practice: By Robert Pratt McCombs, B. S., M. D., F. A. C. P. 2d ed. Philadelphia, W. B. Saunders Co., 1947. Illus. Pp. 741. Price, $8.00.

In this excellent volume, Dr. McCombs attempts to provide for the general practitioner information about the most commonly encountered of those diseases which are usually classified as within the domain of "internal medicine". Inasmuch as it is difficult (if not impossible) to define "internal medicine", there will probably be many readers who question his choice of material covered. Despite this, there is included a rather general survey of most of those conditions which either the general practitioner or the internist would encounter in every-day practice.

Necessarily discussion of each subject is brief, but adequate. There are many color illustrations which add to the value of the discussion; it is unfortunate that no such illustrations accompany the chapters describing the exanthemata. The chapters on disorders of the cardiovascular and of the renal systems are unusually well presented; the presentations of the anemias and of the infectious diseases are thorough.

The average general practitioner can profit considerably by having this book available for quick reference. It will save him much time when he needs assistance for a troublesome diagnostic or therapeutic problem.

SYDNEY JACOBS, M. D.

Ulcer, the Primary Cause of Gastric and Duodenal Ulcer; Diagnosis, Medical and Surgical Treatment, Prevention: By Donald Cook, B. A., M. D. Chicago, Medical Center Foundation and Fund, 1946. Pp. 187.

This volume contains a series of lectures, all relating to peptic ulcer, which the author has delivered to 25 medical societies and 15 other groups, during the years 1936-46. Illustrations and reference lists are included.

STANLEY COHEN, M. D.

History of the Medical Society of the County of Westchester, 1797-1947: Published by the Medical Society of the County of Westchester, 1947. Facsimiles. Pp. 193.

The histories of medical societies, and the medical histories of limited areas fill a special need for the historian and research worker in medical history. Such works are often the sole source of the information needed. With this idea the present volume is a welcome addition to the list of such studies. It is a compilation from the available minutes of the Society for the past one hundred and fifty years, as well as from contemporary sources covering the years for which the minutes of the Society have been lost. In 1922, Dr. Henry T. Kelly published an Historical Sketch briefly covering the progress of the Society during its first 125 years. This sketch was privately printed and distributed; it is therefore reprinted in the present volume, with appendices which bring the record to 1947. The volume bespeaks the care of its preparation.

MARY LOUISE MARSHALL

Epilepsy; Psychiatric Aspects of Convulsive Disorders: By Paul H. Hoch, M. D. and Robert P. Knight, M. D. New York, Grune & Stratton, 1947. Pp. 214. Price, $4.00.

Doctors Hoch and Knight have here edited a small text book made up of contributions from several authors.

The subject of epilepsy is discussed in every detail. It approaches the standpoint of etiology, sociology, pharmacology and psychopathology.

The section on the psychopathology of epilepsy is especially outstanding. It is hoped that this book will be widely read by all physicians dealing with the subject. Too many physicians have the

concept that the treatment of the epileptic merely revolves around the adjustment to his dosage of drugs. Dr. Bela Mittleman discusses at some length the role which various psychologic measures play in the epileptic and leaves us with a clear concept of how important management of his hostility and anxiety really are. Dr. Herbert Jasper contributes an excellent section on the electro-encephalograph in epilepsy.

In the opinion of the reviewer this is one of the best texts on the subject to make its appearance in recent years.

JOHN W. BICK, JR., M. D.

Psychiatric Examination of the School Child: By Muriel B. Hall, M. D. Baltimore, Williams and Wilkins Company, 1947. Pp. 368. Price, $4.50.

The author, an English psychiatrist, defines the scope of her book as "confined to children of compulsory school age—from five to fifteen years—who are receiving full-time education. The special problems of the pre-school child, or of those young people who have left school to enter the industrial world, have not been included."

She has attempted "to describe and discuss what happens at a clinic to which a child is sent for psychiatric opinion." The opening chapters include a brief history of child psychiatry. The book is divided into three main sections, dealing respectively with: (1) Complaints and investigations. (2) Description and discussion of groups of disorders (physical, temperamental, personality and behavior, juvenile delinquency, psychoneuroses, psychoses and psychopathic states). (3) Recommendations and reports.

Doctor Hall states that the book is "designed for the medical practitioner," and "is not primarily intended . . . to provide a textbook of child psychiatry." From this standpoint, her work seems fairly comprehensive and sound.

One feature especially to be commended is the author's forthright stand on the question of explaining a child's mental deficiency to his parents. Too often has this reviewer encountered parents of mental defectives, encouraged by well meant assurance that their child "will grow out of it." Doctor Hall considers it "a serious blunder for lay or medical persons to raise the expectations of parents in regard to mentally defective children." She advises them to seek expert opinion, so that they will learn, and be helped to accept, the truth about their child as soon as possible.

The weakest feature of "Psychiatric Examination of the School Child" is the author's omission of the clinical psychologist's role in such examination; and the omission or too brief mention of the most frequently used tests in clinical diagnoses. She mentions the role of the "educational psychologist," but advises that "every child psychiatrist (be) equipped to undertake intelligence testing, either for regular use in routine specialist practice . . . or in full time child guidance work for occasional application to pathologic cases of special difficulty." She ignores the clinical psychologist and his contribution to the understanding of behavior maladjustments. The value of the Stanford Binet Test, administered either by an educational psychologist or by a psychiatrist, is stressed. But psychologic study by means of the Wechsler Bellevue Scale, the Thematic Apperception Test, and the Rorschach Test is not mentioned, except for one brief reference to the Rorschach as requiring "skill in interpretation, and . . . not, therefore, a test of general applicability." The close cooperation between the clinical psychologist who interprets results of various projective technics, and the psychiatrist who formulates treatment plans for the child or adolescent is given no recognition. Even the importance of emotional factors in cases of reading disability is not sufficiently stressed, and the author's emphasis is on the rare cases with neurologic components. She has not accepted, or is unaware, of more recent views regarding reading disability.

In this reviewer's opinion, "Psychiatric Examination of the School Child" has the limited value of acquainting the psychiatrically uninformed with some problems and methods encountered when dealing with disorders of childhood and adolescence.

Lack of adequate discussion of the significance of play therapy in diagnosis and prognosis, the role of emotional conflict in reading disability, and the role of the clinical psychologist in a psychiatric clinic, constitute serious limitations to the value of the book.

MARION FONT, M. A.

PUBLICATIONS RECEIVED

Blakiston Company, Philadelphia: Essentials of Pathology, by Lawrence W. Smith, M. D., F. C. A. P. and Edwin S. Gault, M. D., F. C. A. P.

Commonwealth Fund, New York: Hospital Trends and Developments (1940-1946), edited by A. C. Bachmeyer, M. D. and Gerhard Hartman, Ph. D.

Grune & Stratton, Inc., New York: Occupational Marks, by Francesco Ronchese, M. D.

C. V. Mosby Company, St. Louis: Handbook of Orthopaedic Surgery, by Alfred Rives Shands, Jr., B. A., M. D. Microbiology and Pathology (Fourth Edition), by Charles F. Carter, B. S., M. D.

W. B. Saunders Company, Philadelphia: A-B-C'S of Sulfonamide and Antibiotic Therapy, by Perrin M. Long, M. D., F. R. C. P.

Charles C. Thomas, Springfield, Illinois: Neurosurgical Pathology, by I. Mark Scheinker, M. D.

Washington Institute of Medicine Research Foundation (The Linacre Press), Washington, D. C.: The Alcoholic Woman, by Benjamin Karpman, M. D.

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A MESSAGE TO THE WOMAN'S AUXILIARY

It was gratifying to the writer, as well as to the doctors in attendance at the recent convention in Monroe, to see the large group taking part in the activities of the Woman's Auxiliary to the Louisiana State Medical Society.

The interest shown by the doctors' wives and their grasp of the problems with which we are now faced is excellent for the profession. The greatest need for us all at this critical time is that we be well informed on all phases of economic life and their ever changing relationship to the doctor and his work. It is here that the members of the Woman's Auxiliaries all over the State of Louisiana, as well as throughout the nation, can do their most valuable piece of work.

The program of study and the projects already outlined by the Auxiliary for the coming year will, I believe, result in a group of exceptionally well informed women who will go out in the communities where they live and work and give the doctors the kind of public relations that will result in better understanding for all.

I feel sure that in the coming year the Advisory Committee will give its closest cooperation in making the work of the Woman's Auxiliary successful.

H. P. Forsyth, M. D.,
Chairman, Advisory Committee.

MESSAGE OF PAST PRESIDENT OF WOMAN'S AUXILIARY

Auxiliary members will remember that our leading project for 1947-48 was the promotion of Louisiana Physicians' Service. For this year the outstanding new work will be to assist the Council on Medical Service and Public Relations in its school health program. In this message I should like to give a few brief facts concerning the present status of the first of the above projects and to tell a little of what we may do regarding the second.

On the prepayment medical care front, you will be interested to know that now every state in the Union except two—South Carolina and Georgia—has a prepayment program either in operation or well along in the organization stage. Forty-two states have plans in operation. Four states have a program approved but not yet in operation. Two states are still in the process of studying plans. Michigan has passed its millionth subscriber mark, now having 1,075,000 enrolled in its prepayment plan. Louisiana, with its plan only in its third year of operation, has 25,817 subscribers, and an aggregate income of $220,000. Louisiana provides more coverage per contract than any other state but one.

So, progress is being made but there is still much to be done and the continued support of doctors' wives is urged.

The project of the Council on Medical Service and Public Relations of the Louisiana State Medical Society to improve health conditions among school children of the state is one which should receive earnest support from every citizen. Especially should parents, teachers, school officials and certainly the Woman's Auxiliary, do everything possible to aid in this program.

The first objective of a four-point plan is to have every first grade child in the state receive a thorough physical examination. Gradual expansion, it is hoped, will include every child to and through high school. The plan is already in effect in the City of New Orleans. It is badly needed in the rest of the state, especially in the rural areas. Some of you will remember conditions which I described to you which I had personally seen in my travels about Louisiana.

An encouraging fact is that Dr. Friedrichs' committee has the cooperation of the State Department of Health, the State Department of Education and the Health Council of the State Farm Bureau. All of these groups plan to work together. However, there are many instances of individual indifference and of actual opposition to health work in schools, and it is in such cases that Auxiliary members can do necessary missionary

work. In one parish last year, for instance, a principal refused to allow the parish health nurse to come to his school, but instead compelled her to go to the Court House to give immunization shots. This same principal refused to have a parent-teacher club in his school. This attitude must be overcome before any school health program can meet with success. Auxiliary members, it seems to me, especially those who are also members of the P. T. A., are adequately fitted to accomplish the desired change.

When the plans of the Council are completed, Auxiliary members will be told in just what manner they can best help. But meantime, please begin the missionary work.

May I thank you again for your splendid cooperation with my administration and urge a continuance of that same fine spirit during Mrs. Owens' term.

BARBARA PORTER WARREN
(MRS. JAMES W. WARREN)

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1. Assisting Council on Medical Service.
2. Education: Membership. Laity.
3. Legislation.
4. Rural medical service.
5. Medical cultural items.
6. Hygeia.
7. Organization.
8. Health days.
9. Red Cross.
10. Cancer.
11. Doctors' Day.

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McMahon, Mrs. Rhett, 210 Convention St.
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Vaughan, Mrs. J. B., 305 K., Monroe.
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Wolff, Mrs. Irving J., 1514 Park Ave., Monroe.
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Yancey, Mrs. Cyril T., 203 Mulberry, Monroe.
McHenry, Mrs. M. A., 1000 Jackson, Monroe.
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Welch, Mrs. James W., 529 Park Place Drive, Alexandria.
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